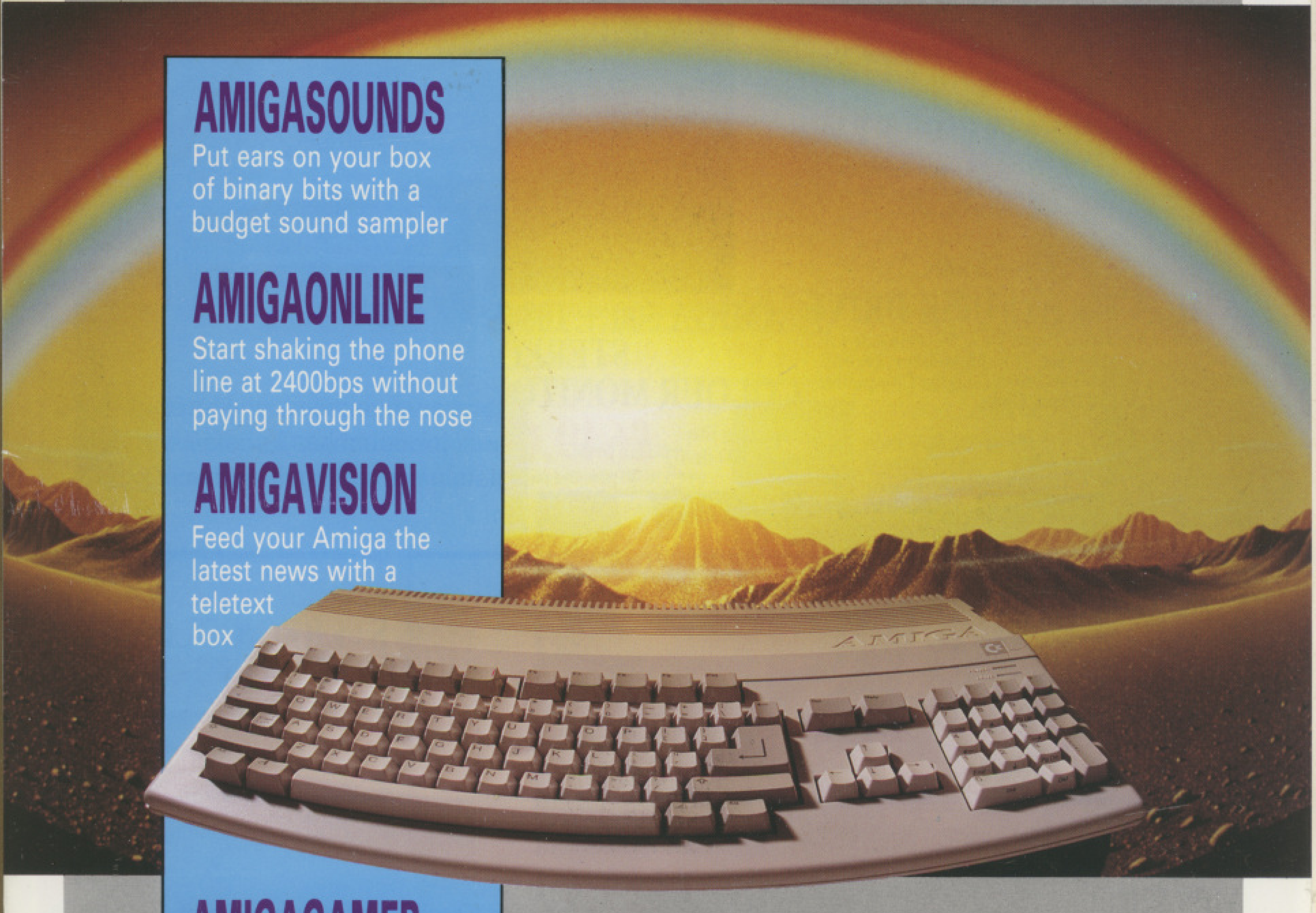
Volume 1
Number 9
February 1989
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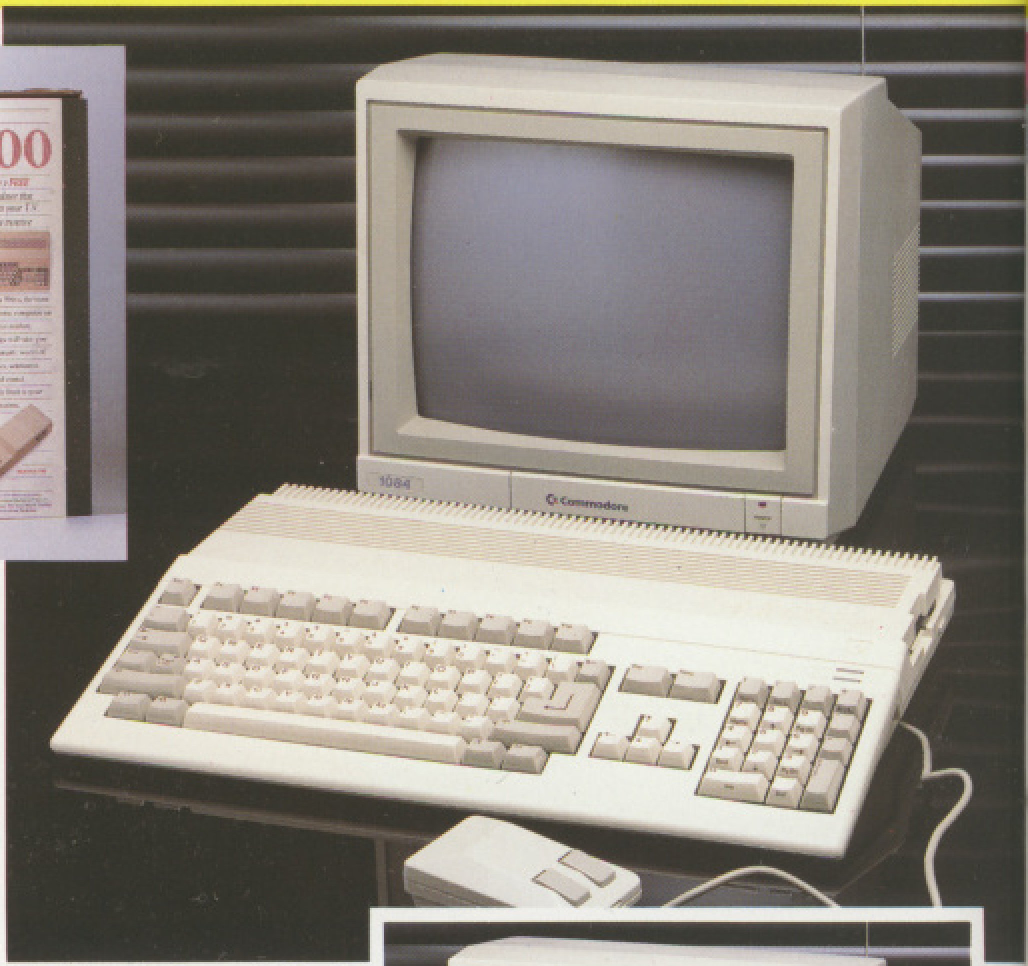
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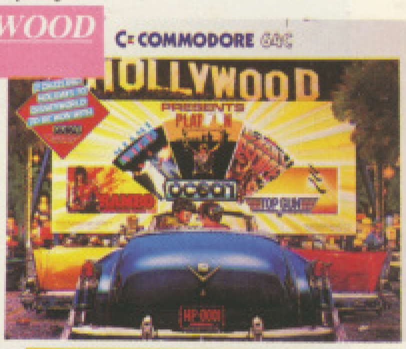
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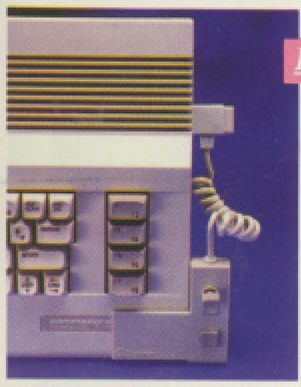
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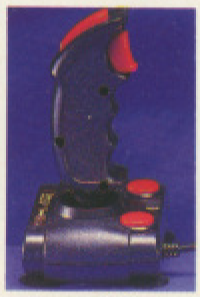
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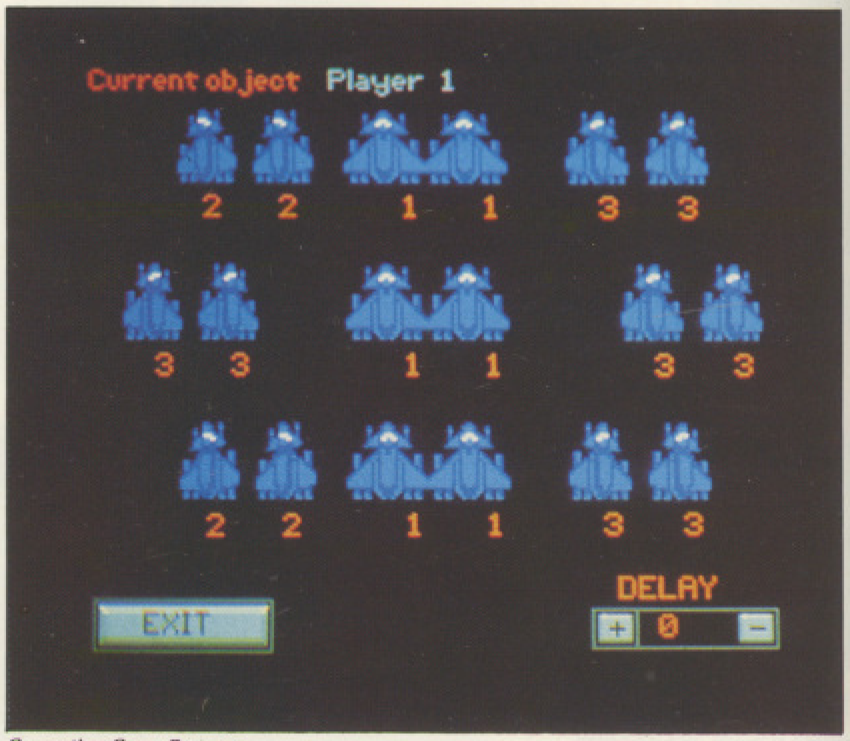
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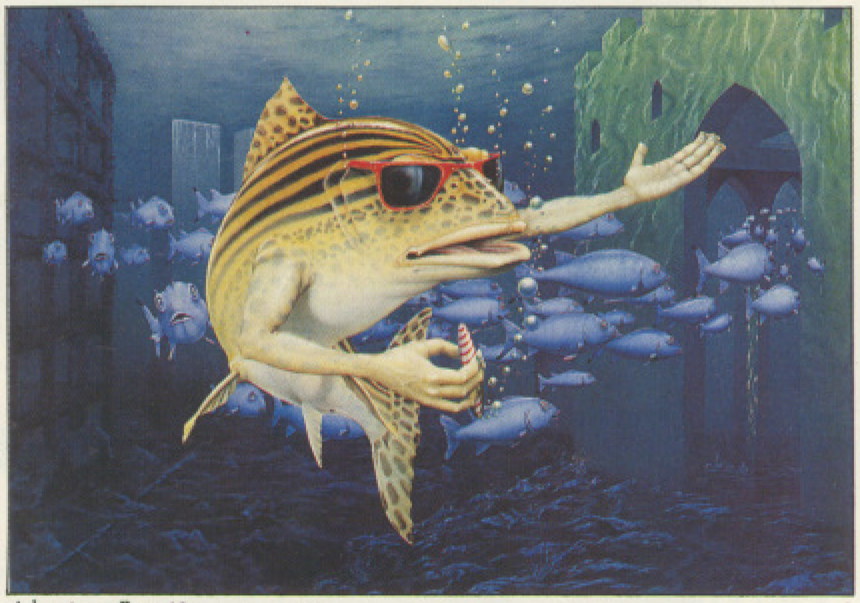
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Readers are given the final word in Amiga Computing. So whatever your views share and enjoy them, love us or loathe us, but don't ignore us.



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The first Hold-and-Modify game for the Amiga – 4,096 on-screen colours





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New breed of virus found

JUST when you thought that the virus plague had been beaten, a new strain appears. This is known as the IRQ virus and uses the technique which infects programs rather than discs.

The IRQ41 virus attaches itself to executable files, making them larger and spreading across discs.

It's prime target is the C:DIR command, but it will also look at your startup sequence and attach itself to the first executable program found in it.

This is similar to the way in which PC viruses spread, and is not as dangerous as traditional boot block viruses such as Byte Bandit and SCA. But it is sufficiently different to evade most virus checkers, including the Guardian and VirusX1.7.

The virus attaches itself to memory by taking over the OldOpenLibrary() vector, and adds a KickTagPtr – for no apparent reason. If you run a program that uses the OldOpenLibrary() vector – and it is hard to predict which ones do – the virus will open your startup sequence.

It then picks the first filename it sees, checks if it's executable, and if so, writes itself into the file. If it's not executable the virus will try and write to the DIR command on that disc.

This virus is mostly a harmless joke. It will not kill commercial programs, it doesn't attack anything and doesn't do anything malicious. It's not nice to have around, but it's certainly better than the malicious variety.

It changes the title bar of the Initial CLI window when you boot, and it will try to write to any disc inserted – thus bringing up the *Volume whatever is write protected* requester whenever you insert a write-protected disc.

This virus will not work under Kickstart 1.3 – you will get *Software Error* requesters whenever you run an infected program.

You cannot spot if a file is contaminated just by looking at it. The virus encrypts the text parts of itself, and does so differently on each copy – so you can't learn to recognise it.

You can tell your system is infected if you put in a write protected Workbench disc – or any disc with a startup sequence – and if the system brings up a *Volume whatever is write protected* requester, this virus is in ram attempting to infect the disc.

When it first installs itself in your system the virus changes the title bar of the current window on reboot – usually the initial CLI window, since it is the first thing in your startup sequence – to say something like *Amigados Presents: The IRQ Virus, V41.0.* This is of course a dead giveaway.

The Americans have been really quick to eliminate the early strains of IRQ41 and Steve Tibbett of VirusX fame has produced VirusX3.1 which will spot and eliminate most of the common viruses, including the new IRQ bug.

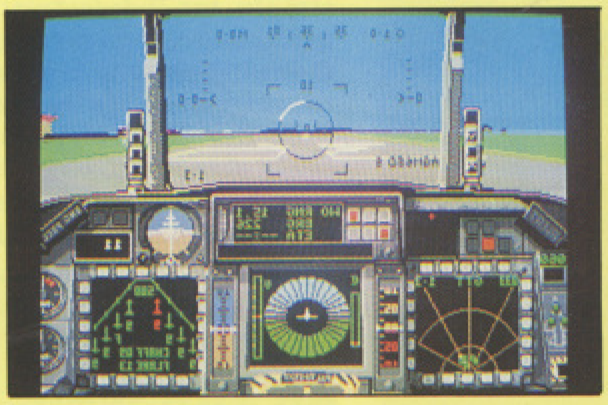
To get the virus out of ram, run VirusX 3.1 and it will tell you if it found it and that it removed it if it did. VirusX will check discs in the same way that the virus does. It looks at the startup sequence, determines if the first file found – or the DIR command – are infected, and gives you the option of repairing them if necessary.

You can also get rid of the virus simply by deleting all infected programs and rebooting. This virus will not hang around after a reboot.

VirusX 3.1 will look in the same places the virus does for possibly infected programs. If it finds one it will pop up a window and show you where it found it, and ask if it's OK to remove it.

Keep VirusX 3.1 running when you test new programs. It will alert you as soon as it sees the virus appear in memory – probably the last program you ran was infected.

The best place to get hold of a copy of VirusX3.1 is a bulletin board or conferencing system like CIX – a good enough reason in itself for buying a modem. Otherwise contact a supplier of PD discs like the Amiga Users Group for a copy.





Amiga's F-16s fly in

THESE are the first screen shots from Digital Integration's F-16 Combat pilot. The game is reputed to offer accurate simulation of the top-notch American fighter with Dave Marshall of DI having tried a real military simulator to fine tune the accuracy.

As with previous DI games on 8 bit micros, F-16 Combat Pilot includes a strategy side. There are eight squadrons, each with a combat zone of 20,000 square miles offering a variety of challenges.

The ultimate challenge is Operation Conquest where you assume the role of Squadron Commander for both tactical planning and the combat skills of air-to-air interception, counterair operations, interdictor strike, battlefield ground support and reconnaissance.

Commodore fighting massive back tax bill

COMMODORE UK is keeping quiet about a massive tax bill said to be owed to the Internal Revenue Services in America by Commodore International.

None of Commodore's UK chiefs have been forthcoming with comment on claims by the IRS that they are owed $74.1 million.

An American press report said Commodore had received a statutory notice of deficiency from the IRS for taxes of $74.1 million over the years 1981 to 1983.

"The company strongly disagrees with the notice and will vigorously contest the proposed deficiency", it continued. "Outside tax counsel Mayer, Brown and Platt has advised management that the company has a solid position on the facts and a strong legal defence with regard to the IRS claims".

Commodore International believes its tax reserves are adequate to cover "a realistic resolution of the tax liability". It is confident that resolving the deficiency will not have an adverse effect on the company's earnings.



New technology goes on show

This report was prepared by the staff of Amiga Plus, a new American magazine to be launched in the US in March.

AT this winter's shows, including World of Commodore and Comdex, Commodore was showing working prototypes of a whole line-up of advanced new Amiga technology, some or all of which will be at the Which Computer Show in Birmingham:

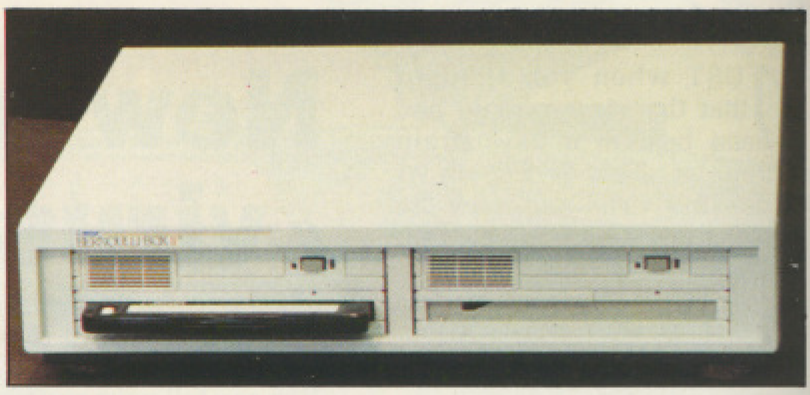
- A high resolution, ultra speed colour graphics card displaying programmable resolutions up to 1024 by 1024 at six million commands a second.
- The A590 combination 20Mb hard disc and 2Mb memory expansion for the Amiga 500.
- The PVA2350 all-in-one video adapter board combining a frame grabber, digitiser and genlock, so you can capture and manipulate video images from all sources.
- Janus 2.0 improved multiprocessor software that runs IBM AT and XT in multitasking mode. Supports CGA colour and MDA mono simultaneously with Amiga graphics, with either the 80286 or 8088 Bridgeboard or the Sidecar.
- Ultra high-speed Transputer Parallel-Processing Workstation 32 bit implementation for the 2000. Up to 170 million instructions a second – 20 million floating point operations a second – with 17 Inmos 32 bit transputer processors. Uses Helios and X-Windows software.
- Unix-compatible Amix for the new 68020-based Amiga 25000UX. This operating system is fully compatible with AT & T Unix System V, Release 3.1. The 25000UX will come with 5Mb ram, an 80Mb hard disc and 150Mb tape streamer. This system, with a beta release of Amix, is currently for sale to qualified Commodore developers.

Also on display was a new Macintosh emulator by a New Zealand developer. Unlike the earlier Magic Sac for the Atari ST, this new Amiga emulator uses today's 128k rom chips in its hardware interface.

On the games side Discovery software from Annapolis, Maryland, was showing Sword of Sodan, a graphically elaborate three-disc fantasy adventure featuring 4Mb of action and realistic digitised sounds.

The best-selling Amiga spreadsheet in America, Maxiplan, has switched to a new publisher, BEST, and is about to be released under a new name, PlanIt.

Brown-Wagh, a highly active Amiga publisher (Express Paint 3.0) from Silicon Valley, is opening a London office to be managed by Jim Housego, former Commodore UK national sales manager. B-W's newest is Midi Magic, a powerful but easy-handling sequencer which has been highly impressive in show demonstrations.



Box of tricks...

A REVOLUTIONARY cost-effective alternative to hard disc drives is now available for the first time for the Amiga. Known as the Bernoulli Box II, it is a half height drive that uses removable 5.25in 20Mb disc cartridges.

The system stacks up favourably against most hard discs in that it offers:

- Faster performance – an average 40 milliseconds seek time.
- Infinite storage capacity simply by increasing the number of cartridges used.
- Greater security in that the cartridges can be removed from the drive and stored safely elsewhere.

In a direct price comparison with hard disc drives each 20Mb of storage costs only £65.

Cartridges can be split between Amigados or MSdos format – when used with the XT Bridgeboard – or a mixture of both.

Bernoulli Box II is supplied with an SCSI interface – fully auto configuring and compatible with all Amigados commands – which fits into the first expansion slot of the Amiga 2000 or on the DMA port of the 500 and 1000.

The drive units come in three models: Single external (£1,489.25), dual external (£2,179.25) for the entire Amiga range and internal for the Amiga 2000 only (£1,224.75).

Bernoulli Box II for the Amiga is available from the sole European distributor – Burocare Graphic Design of Harrow. Tel: 01-907 3636.

More gore on the way

OUT soon on the Amiga is Human Killing Machine from U S Gold (021-356 3388). Developed by Tiertex, the game features Kwon, a traveller who has a score to settle with many enemies.

On his grudge journey he visits Moscow where he avenges himself with his old enemy Igor and his dog Shepski. In the red light district of Amsterdam he tackles the delectable Maria and her partner Helga and then it's on to Barcelona where Igor tangles with Miguel the toreador and Brutus the bull.

In Germany there is a bottle throwing pub brawl with Hans and Frans and the game ends in Beirut with a battle against guerillas Sagan and Merkava.

Debut for Amiga 2500

COMMODORE UK is to unveil the latest machine in its Amiga range – the 2500 – at Which Computer? '89 at the National Exhibition Centre on February 21.

Although details about the Amiga 2500 are sketchy at the moment, it is known to be aimed at the workstation market.

Amiga Computing has also learned that it operates through version 1.4 of Workbench, uses the 68020 CPU and boasts an enhanced chip set.

The Amiga 2500 is also destined to house both the Unix card and the AT bridgeboard, both of which will also be on view at Which Computer? '89.

Trade Show attracts

WITHIN one month of the European Computer Trade Show being announced, 50 per cent of available space was booked.

The show, which is aimed at the leisure and small business sector of the computer market, is at London's Business Design Centre from April 16 to 18.

It has generated overwhelming interest not only in the UK and Europe but also in the USA.

The British Microcomputer Federation has given the event its support, and key speakers from Germany, France, Holland, Italy, Sweden and the UK have been confirmed to take part in the show's Computer Trade Forum.

"The computer industry has reacted in the most positive way possible to this event – by voting with its feet", said Michael Meakin, head of organisers Database Exhibitions.

Kickstart 1.3 released

COMMODORE has released its Amiga Enhancer V1.3 kit which includes three discs and a manual.

The £14.99 kit contains Kickstart 1.3 for Amiga 1000 owners as well as the improved Workbench 1.3. Commodore is also supplying the improved operating system discs with new deliveries of the A500 series in the UK.

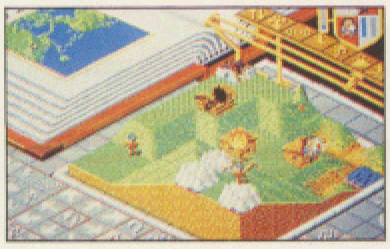
"With the arrival of this update, the Amiga has again set the pace for everyone else", said Commodore's technical support manager Rahman Haeleem. "With capabilities such as disc partitioning raised to two gigabytes, the Amiga range looks better than ever before. It's a must for every Amiga user and an extra incentive for anyone thinking of buying a 16 bit machine".

Kickstart 1.3 has several improvements including faster disc filing system; hard disc read/writes up to seven times faster and directory catalogue up to 10 times faster.

Be a god

CONNECTING Amigas seems to be really popular. It is one of the features offered by Electronic Arts' new release, Populous. Because this has been written by the British company Bullfrog, it will go on sale here before the American public gets a look at it.

You play a god whose aim is to recruit more followers than a rival god. Followers are encouraged by flattening



land for them to build houses. The enemy's followers can be killed off with earthquakes, storms and other natural disasters – although watch out, for he can do the same to you.

Price £24.95.

Show time winners

WINNERS have now been chosen for the Design a Christmas Card competition held at the Commodore Christmas Show.

Editor of *Amiga Computing* Simon Rockman gave the first day's prize to Mat Broomfield of Langdon Hills, Essex, for his forest of Christmas trees in the snow. Second day's prize went to Mr. A. Orton of Burton on Trent, Staffordshire, who drew a flying Father Christmas, and best on the third day was Giorgio Utimpergher of Swindon, whose entry also featured Father Christmas.

Prizes for each day were copies of Photon Paint provided by Commodore.



Wysiwyg cartoon capers are here

JIM BUTTERFIELD reporting from Canada

THE big crowd-pleaser at the December 1988 World of Commodore Show in Toronto was clearly the premiere of MovieSetter, the "push button wysiwyg animation" program from Canada's own Gold Disc developer.

Professional quality cartoon sequences created with this new software were playing continuously at half a dozen locations around the hall.

Commercial quality comic book pages in full colour can be produced easily by Gold Disc's ComicSetter. MovieSetter takes this process to the next level of complexity, producing animations of commercial quality images.

The resulting smooth, realistic motion looks quite comparable to the professional cartoons that take over kiddie television on Saturday mornings.

Like ComicSetter, MovieSetter provides non-artists with an extensive library of characters and props to start out with. You can also import backgrounds and characters from other paint programs in standard IFF format, or draw your own images within MovieSetter.

All animation commands are controlled by the mouse from onscreen icons. Clicking the mouse moves the characters and changes the speed, colours, or backgrounds.

The program supports scrolling, colour cycling, wipes and dissolve effects, and editing of sound as well as visuals.

Movies several minutes long can be created on disc at up to 60 frames a second and with 32 colours. There's full overscan for transfer to videotape.

With wysiwyg animation you're watching the process in action at every step. Let's say you're creating a walking man in your first frame. Just move this image to the second frame and re-position the arms and legs. Continue frame-by-frame until you have smooth animation.

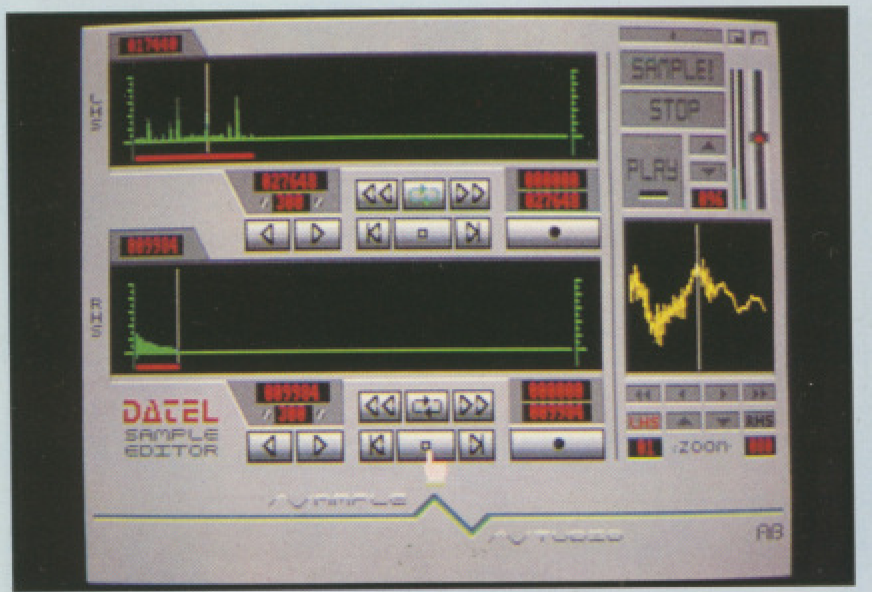
Animated objects are easily placed and moved anywhere. Path guides simplify the process even more. Use the mouse to draw a line across the screen and the object will follow it. Gravity and acceleration can be fine tuned.

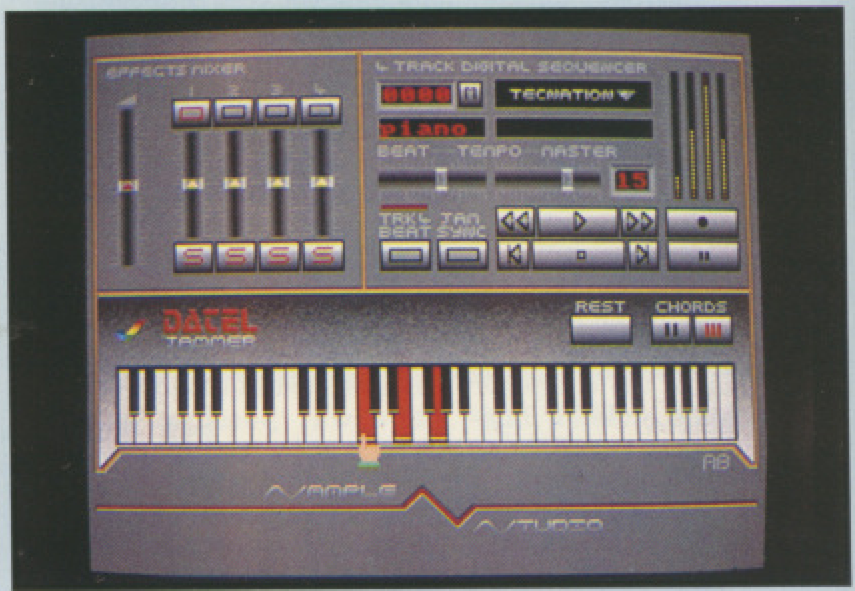
Stereo sound effects can be panned between left and right channels and perfectly timed to match the action. For example, the sound of footsteps might follow the motion of a character moving across the screen.

A strong supporting act at the Toronto show was Viva from MichTron – an elegant and powerful "hypermedia authoring environment" which will be marketed in the UK by Microdeal.

Viva (Visual Interfaced Video Authoring) is an interactive storyboarding tool that enables you to combine text, graphics, video, sound, colour and animation on a full range of visual media devices including videotape or laserdisc.

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- Software files can be used within other music utilities.

To complement the Sample Studio the Datel Jammer gives you a 5 octave keyboard to play & record your sampled sounds.

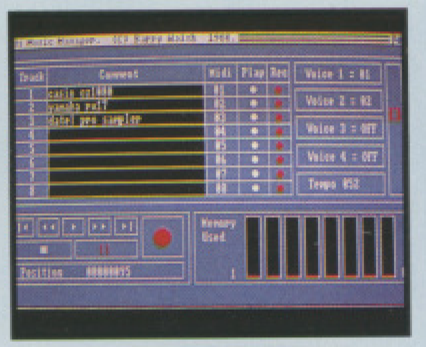
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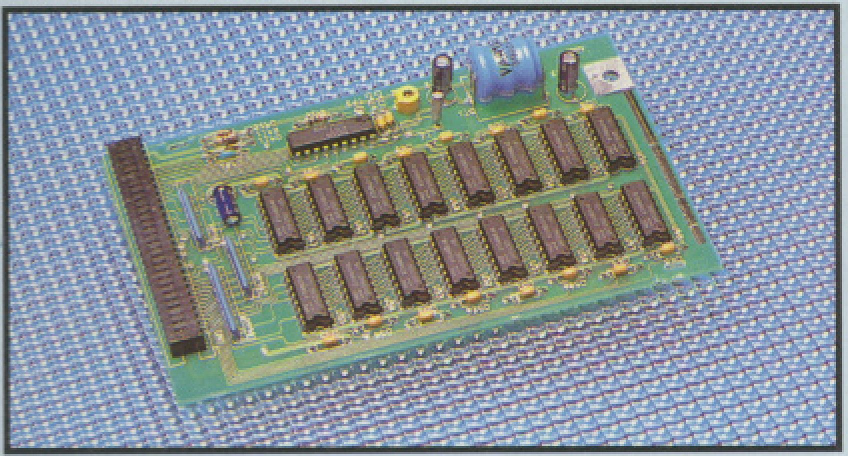
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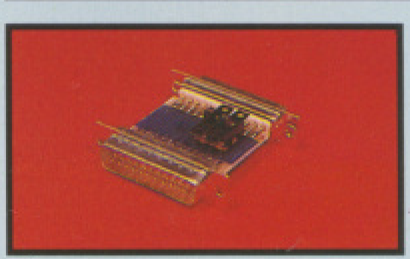
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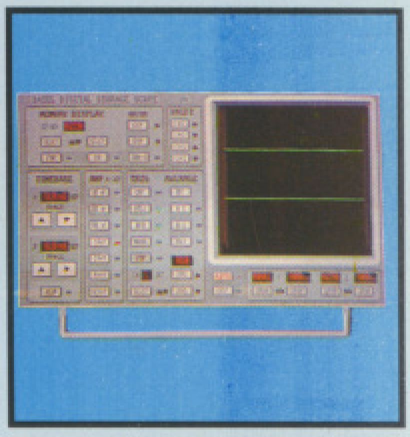
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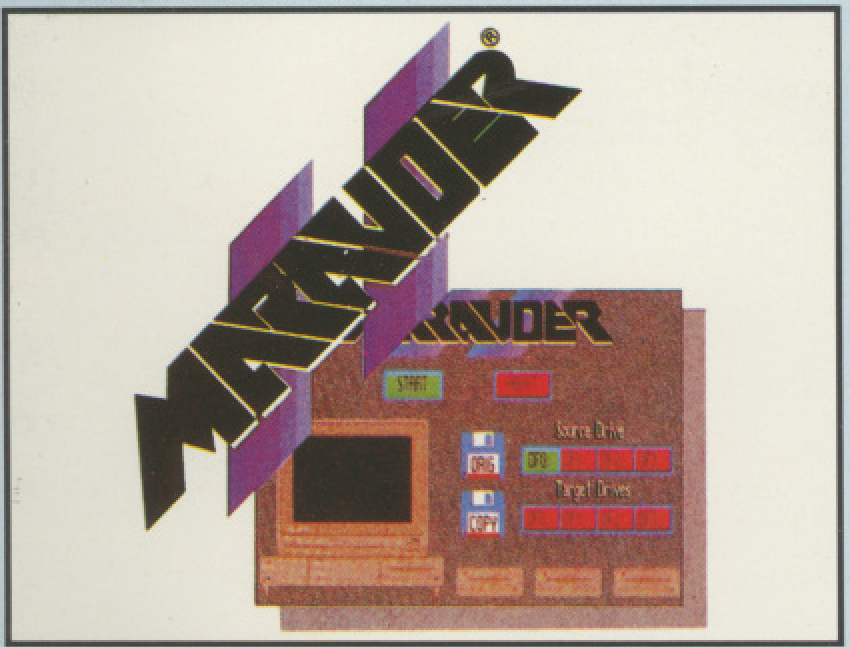
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In an octop

Dave Eriksson follows Ingrid ho
history and relaxes with an



MAGNETIC SCROLLS has a reputation for brill adventures. Its latest, Fish!, is no exception. You play the part of an inter-dimensional espionage agent currently on a month of rest and recreation or to be more precise – in voluntary vacation mode.

Your boss, Sir Playfair Panchax VC DSO FRT, suggested a holiday, after all you had been working for an extended period without a break. You have earned the highest reward within the service – one month inhabiting the body of a goldfish. Oh the peace, the tranquility of it all. You can have a whale of a time.

But it was not to be. Having just started to really relax, you are called back to solve the worst crime of the century. The Seven Deadly Fins are a pretty gruesome lot, their list of crimes is already as long as your arm and, unusually for a fish, you do have arms.

The Seven are planning to sabotage a whole planet inhabited entirely by fish. The world is being battered by a gross attack of evaporation. To combat this, a project has been set up to replaice the lost water. But the Seven Deadly Fins have stolen the focus wheel – a vital part of the mechanism. It has been separated into three pieces and hidden at different locations.

And when the chips are down it is you, Agent 10, who has first to retrieve the missing parts and then replace the mechanism.

The whole concept of the inter-dimensional espionage section revolves around their ability to "warp" an operative's persona into a host body anywhere in the universe – how did you think you became a goldfish anyway?

Sir PP pops three warps into your goldfish bowl, so that you can skate off to the possible hiding places of the parts of the missing focus wheel. Find

...pus's garden

...grid home, looks at some dungeon ...with an aquatic adventure



all three and you will get a further warp to take you to the city of Hydropolis and put an end to this dastardly plot.

These initial three warps will take you to mini adventures where you have a host of human forms. You may tackle them in any order and you are looking for a ring, a grommet and a spindle. There are various ways of returning to your goldfish state, but strive for the one that occurs after you have found what you are looking for.

To find the ring you will travel to a wooded area and meet Micky Blowtorch, an ex-operative, and his exploding parrot perched nearby, (cod be a red-herring). This is quite a tricky little puzzle, with only a few locations but timing is everything. Mistakes can be sole destroying.

The grommet is in an old abbey, at present occupied by hippies. You must look like one of them and take care not to attract their attention, as one or more of the Seven Deadly Fins may be among the group. There are only a limited number of locations to explore – just keep your eyes peeled.

Finally, the spindle is found in a recording studio where the deadly Seven are cutting their latest hit. Your first task here is to find a way of supplying the producer with copious amounts of coffee. Without this regular intake of stimulant he will make your life hell and you cannot get on with your investigation. Take a leaf out of his book and delegate!

When you reach Hydropolis you will take over the body of fish scientist and project leader, Dr Roach. Arriving in his apartment you will receive a reminder of his appointment with the university's principal at 10 o'clock. Just check that out in your fishofax (is this a Guppie adventure?) before you leave.

Travelling by underground during the rush hour can prove un-nerving,

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VISA

especially when you realise that the Seven Deadly Fins are probably all out to stop the project in any way they can. This is the largest section of the adventure, and getting your device working will involve some Heath Robinson efforts. With a bit of luck you'll end up with a bout of R and R (sorry VVM) back in that goldfish bowl.

There is plenty of delicious text to read and the graphics are up to Mag Roll's usual standard. It just seems a pity that apart from the initial brilliant screen all the fishy citizens of Hydropolis seem to look like us. That loading screen is great, and the watery bubbles of the loading tuna must have taken some time to synthesise.

YOU can't carp at the command interpreter, but I do get fed up with having to type whole words instead of just the first four or five letters so some single letter abbreviations help a bit.

Another first class adventure from Magnetic Scrolls, suitable for all adventurers with a sense of humour. Cypheric hints are given for the confused – even if the code does take an age to type in! Great value for 25 squid.

REPORT CARD

FISH!
Magnetic Scrolls/Rainbird
£24.95

STORY LINE
Well thought out, novel and logical

AURA
Each section builds to a fine ending

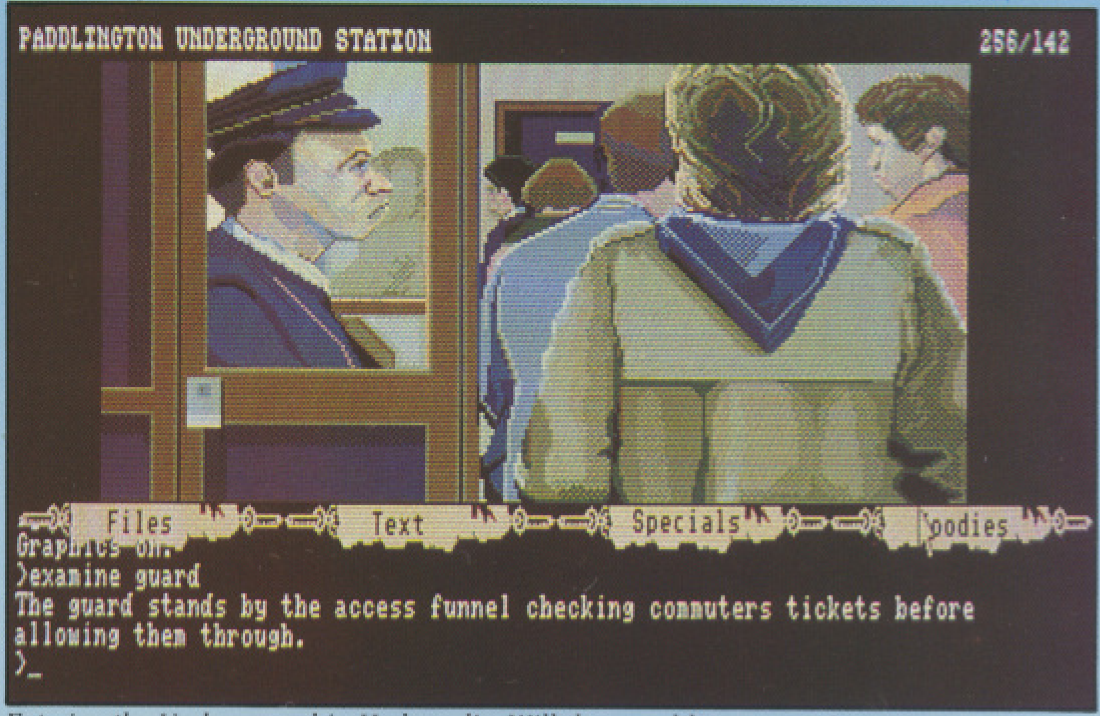
STAYING POWER
Well graded puzzles keep up the pace

GAMEPLAY
Typing errors could prove frustrating

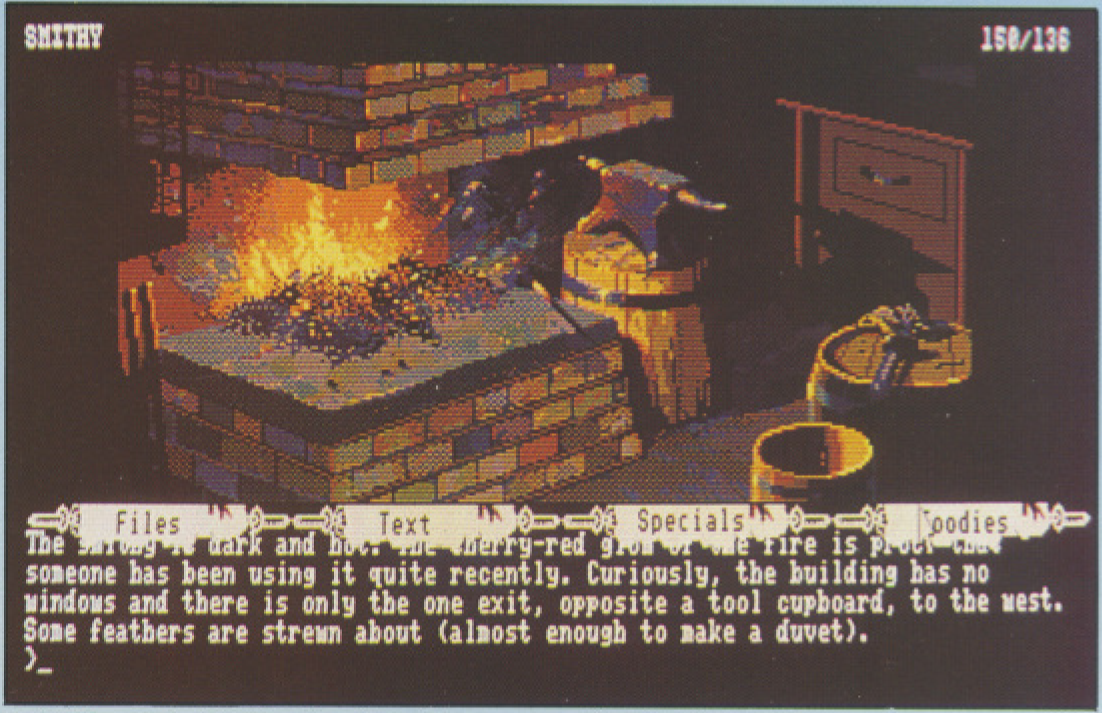
VALUE
Top games demand top prices

DIFFICULTY
Examine and use everything possible

OVERALL 89%
Good fun to play throughout



Entering the Underground in Hydropolis. Will the guard let you past?



A Smithy in the forest – it's all working . . . use it!

INGRID Bottomlow, the well meaning but tactless young gnome-maiden, has returned. Level 9 first introduced us to this lady in Gnome Ranger. Her story started as she had just completed her education at the Institute of Gnome Economics.

Her ideas were sound, but the outcome of nearly all efforts ended in disaster. When Ingrid's progressive attitude annoyed her traditional gnomic family too much they gave her a magic scroll that "accidentally" transported her far away. Ingrid's journey home gave us an adventure that was both amusing and devious.

Ingrid's Back begins shortly after her return, and while the family is still trying to think of a way to get Ingrid out of their hair local events overtake them.

There is a move afoot to transform Little Moaning and the Dribble Valley into a Yuppie Homes development and a Gnorsegnome-style yacht marina. Jasper Quickbuck, the Lord of Ridley's Manor, is the prime mover in this money grabbing scheme, abetted by his henchman Silas Crawley. The villagers have been conned into going to a party, thereby vacating their homes and apparently agreeing to the development. Needless to say, Ingrid is at the forefront of the battle to save the day.

The adventure is divided into three parts, any of which may be played independently. In the first of these, Ingrid must get all the locals to sign a petition. Not everyone likes to be around when Ingrid is busy at something, and a certain amount of subterfuge will be necessary to get some of the signatures.

The only creature that really trusts her is Flopsy the dog, and on one or two occasions it is only with canine help that Ingrid can win through.

PART two brings back memories of the Hitchhikers Guide to the Galaxy. Silas, armed with a steamroller and several trolls, sets out to steal the deeds of Ingrid's home, Gnettlefield Farm.

Ingrid, again with Flopsy's help, must immobilise both the steamroller and all the trolls, trying not to destroy her family in the process.

Having drawn a temporary halt to Jasper's plans in the first two parts, a FINAL SOLUTION must be sought in part three. Ingrid now goes undercover. Posing as a maid, she goes to Ridley's Manor to unearth evidence of Jasper's nefarious dealings. Her cousin Daisy, already employed at the manor, proves to be a willing conspirator.

The descriptive text maintains the right atmosphere and is often very amusing. There are plenty of good quality graphics to complement the story line.

The command interpreter is similar to that used in Level 9's Lancelot and is in many ways better – and certainly easier to use – than that used by Magnetic Scrolls. It even understands both "give me the letter" and "give the letter to me".

The flow of play is not restricted, as only the first four letters of a word need to be entered in most cases. The arrow keys will bring back commands issued earlier, either to be used again or for editing.

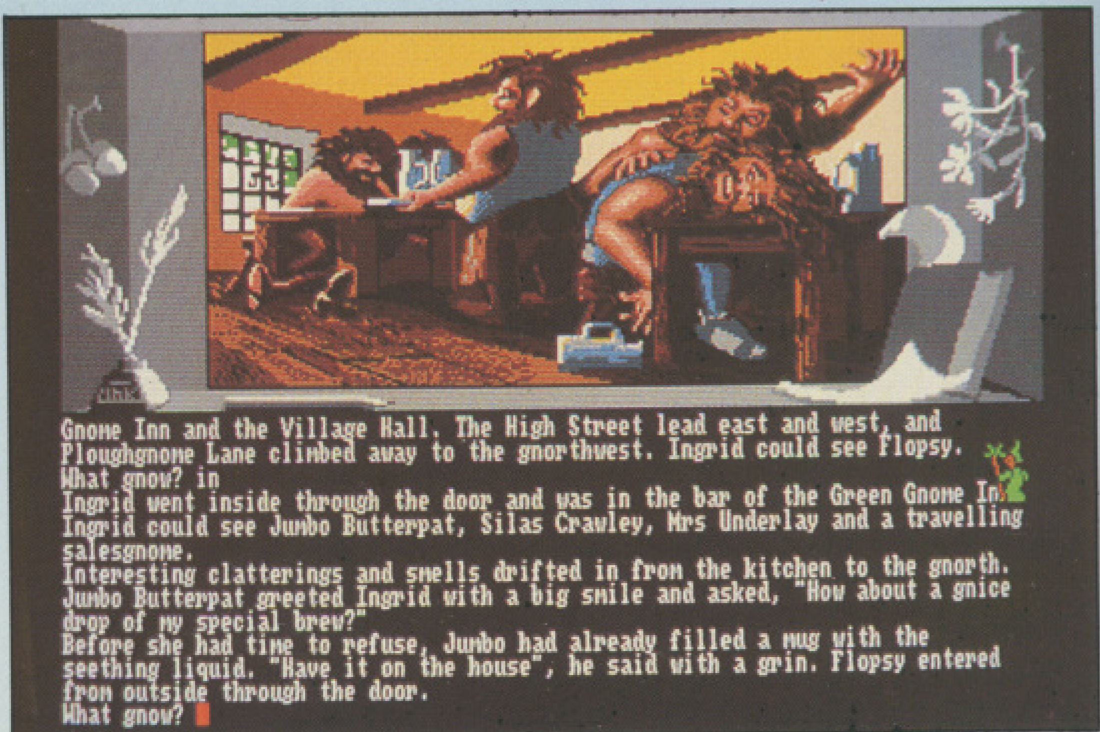
Ingrid's Back also makes use of Level 9's GO TO and RUN TO commands. Simply enter GO TO MANOR or GO TO FARM rather than giving a string of compass directions – really useful once you have mapped out the terrain.

The instruction booklet includes a few hints on adventuring in general and Ingrid's Back in particular. It also has a copy of Ingrid's Diary. Catch up on what has happened since her last adventure.

Ingrid's Back is great fun to play and has to rate as a must for any adventurer. Part one involves a great roller coaster sequence in a dog cart and part two brings out Ingrid's lethal logic to the full. The twist at the end of part three is completely unexpected and makes you wonder if Level 9 can ▶



Rulf, to be found in Ridley's Manor. Quite a painter – sings while he works too!



In the pub with Silas, Jumbo Butterpat and a couple of travelling salesgnomes

REPORT CARD

INGRID'S BACK
Level 9
£19.95

STORY LINE
Logical and amusing. Ingrid rules OK

AURA
Can almost smell those gnomic fields

STAYING POWER
Puzzles well graded to keep interest

GAMEPLAY
Good use of character ignteraction

VALUE
Gnot to be missed worth every penny

DIFFICULTY
Is gnot as easy as you first thignk

OVERALL 80%

A worthy successor to Gnome Ranger



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Atari ST screen shots

get her un-knotted for a third tale in the future.

No game from Level 9 is ever easy, but an excellent hint sheet is available if you get stuck. It is laid out to give you clues without giving away too much that may spoil the rest of the game.

ONCE there were no Amigas or Atari STs and in that bygone era was born an adventure program called The Temple of Apshai. It followed the general idea of Dungeons and Dragons, with lots of monsters to meet in battle and treasure to be found.

TTA has stood the test of time with conversions for almost all computers, including the Amiga. Thankfully this interpretation has superior graphics attributes of a character from an earlier game. You can restore a previous game saved at any point within Apshai.

A status screen shows wounds and fatigue. Wounds may be healed by using healing salves or elixirs, the former being purchased from the innkeeper. The latter can be found within Apshai. Fatigue may be relived by moving more slowly or resting. The heavier your equipment or treasure, the more fatigued you become.

Having beaten the innkeeper down in price – pay the asking price and you will end up with very little equipment – and purchased a sword, armour, shield, bow, some arrows and a few healing salves, you are inventory of your treasures or saving the game or character for future use.

Most levels of each realm have 50 to 60 rooms, so there is plenty to explore. Some monsters are tied to particular locations, but others wander around looking for the odd meal.

The innkeeper will pay you for any treasure you have collected so you have a chance to add to or improve your equipment. Remember that heavy weapons and armour affect your movement and energy output.

There is a little more to Apshai than straightforward monster bashing, but nowhere near the depth of puzzles and quests to be found in more modern offerings such as Ultima and Bard's Tale.



Silas Crawley's steamroller and an assortment of Trolls



I wonder what is in that chest

and faster gameplay.

On the disc you also get the two additional adventures that followed, Upper Reaches of Apshai and the Curse of Ra. The Temple of Apshai Trilogy is produced by Epyx and is distributed in the UK by US Gold.

The 80 page manual covers all the basic rules, together with a room by room description of the locations. The screen display simply depicts a series of rooms and corridors.

It is not necessary to read the descriptions but it helps set the scene. You will also need to refer to the manual to check out the treasures – some are worthless.

You can start from scratch, with your character given a random 1 to 18 for six basic attributes: Intelligence, intuition, ego, strength, constitution and dexterity, together with a number of silver pieces.

You can enter a previously saved character from disc or enter the ready to enter Apshai. You have the choice of which realm to explore and at what level.

Each realm has four levels. Dungeons and Dragons followers will find levels 1 to 2 are appropriate to third level, and the lower levels to fourth and sixth level characters.

A number of commands are available and the mouse can be used for movement and direction. Single key commands from the keyboard also allow you to move forward from one to nine feet, turn left or right, attack, thrust or parry and fire a normal or magic arrow.

There are special commands, such as examining a wall for secret doors, opening doors, searching for traps, picking up treasures, listening for monsters, talking to monsters, healing with salves or elixirs, checking the

REPORT CARD

TEMPLE OF APSHAI TRILOGY
Epyx/US Gold
£24.95

STORY LINE
More in the mind than on the screen

AURA
Sweaty palms when you set forth

STAYING POWER
Addictive in early stages but as you become more powerful, it is too easy

GAMEPLAY
Limited puzzles and no specific quests

VALUE
Logical progress gives many hours play

DIFFICULTY
Survival only difficult early on

OVERALL 67%

Classic but lacks puzzles of any depth

Lombard RAC rally

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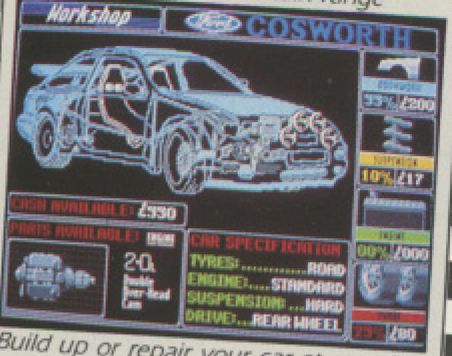
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Screenshots from Atari ST version

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in association with Red Rat



EVEN as you sit there, the word Gorbachov has digitally flashed past your left elbow at the speed of light. Bet you missed it, but then you probably haven't got a Microtext Teletext adaptor.

This box is capable of turning your Amiga and colour monitor into a device able to decode the name of any major head of state out of thin air – more than many major heads of state can boast. It also turns your monitor into the only television set in your house with mouse control.

Inside the Microtext is a complete television set, without the picture tube but with a teletext decoder. The whole thing is a white box just slightly wider but not as high as an external disc drive, and within that are three chips and a tuner for the TV part, and six chips for the teletext bits.

It plugs into the Amiga through the printer port and into the monitor – assuming its an 1084 or similar – via a lead. It's got a through printer port, which works normally most of the time. The only control on the Microtext is a switch, which makes the printer port work normally all of the time.

The lavish instrumentation is completed by a no-expense-spared light emitting diode finished in olde gold-style yellow. This glows.

Plug a TV aerial into the back of the Microtext along with some power, and load the software. The Microtext software either loads in automatically from power-on, or can be selected from the Workbench by clicking on that giant television loitering in the middle. Microtext has thoughtfully redesigned the preferences and CLI icons.

The software checks to see if power and adaptor are OK, and then launches into either a tuning sequence or the main, and only, screen. The tuning sequence instructs the adaptor to start scanning the UHF TV band and search for a signal. When it finds one, the information about channel number is stored away; the complete set is then stored on disc.

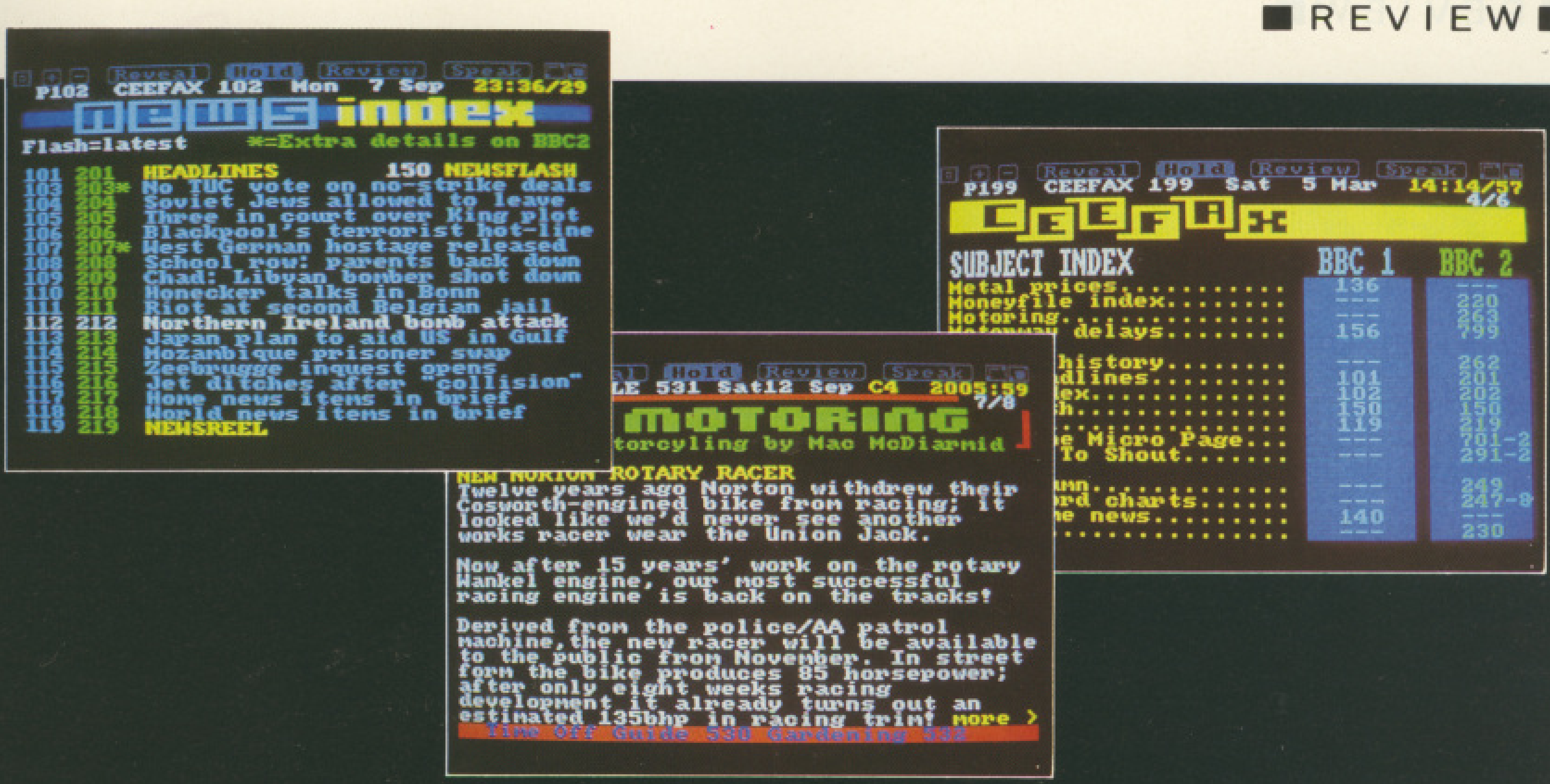
That's all there is to setting up the unit – no channel knobs to twiddle or drift. There are versions available for other countries and systems as well, so VHF and cable services are catered for.

As well as decoding teletext, the Microtext provides the proper video and audio signals to enable any composite monitor with a speaker to behave as a TV.

THE standard Commodore 1084 is particularly good for this, as the TV and Amiga screens can be selected by the front CVBS button. It gives an exceptionally good picture too, unless you're using a TV set with a modulator as a monitor. In which case buy a proper monitor first.

Selection of a channel is via a menu – on the Amiga screen, as the Microtext isn't a digitiser or genlock – as are all other functions. Somewhat oddly, the channel selector is hidden on a top-line option called Review, along with such esoterica as the subcode controls. Well, it's not actually on that option, but the menu bar has gadgets on it which get concealed when the left mouse button is pressed and a set of options appears.

These options are, left to right,



Teletext turn on

Rupert Goodwins' Amiga discovers the joys of watching television and consults the Oracle

Project (eh?), Display and Select. Project is where the computer gets its fangs into the teletext system. As well as Load and Save pages to disc – the only commands with A-key shortcuts, by the way – there's a Save IFF to export pages to other Amiga programs Plus an Erase function for when your only formatted data disc is full and you can't be bothered with the CLI, Print a page as just text or as a graphics dump and Speak (also available from a gadget).

Print only prints the current page; it would be nice to have a Print page range option. Speak is a good idea, both because this makes the Amiga the only talking teletext home computer as far as I know and because of the next item on the Project menu – Program.

Program lets you set up a list of channels, teletext pages and actions which the computer will repeat ad infinitum. For example, it can display page 451 on Channel 4 for 10 seconds, print out the newsflash page from the BBC and save the sports pages on ITV.

Programs can be made to autorun, run with the screen sent to the background – allowing Workbenchish things to be done atop – and repeat. It's possible to do some really bizarre things like this. With an autodial modem you could program the Amiga to send you the latest stock prices every hour – phone up and read the news... – say the joke page from BBC1 on the quarter hour until your neighbours give you large sums of money or have a reasonable newspaper printed for you when you get up in the morning. Why? Ummm..

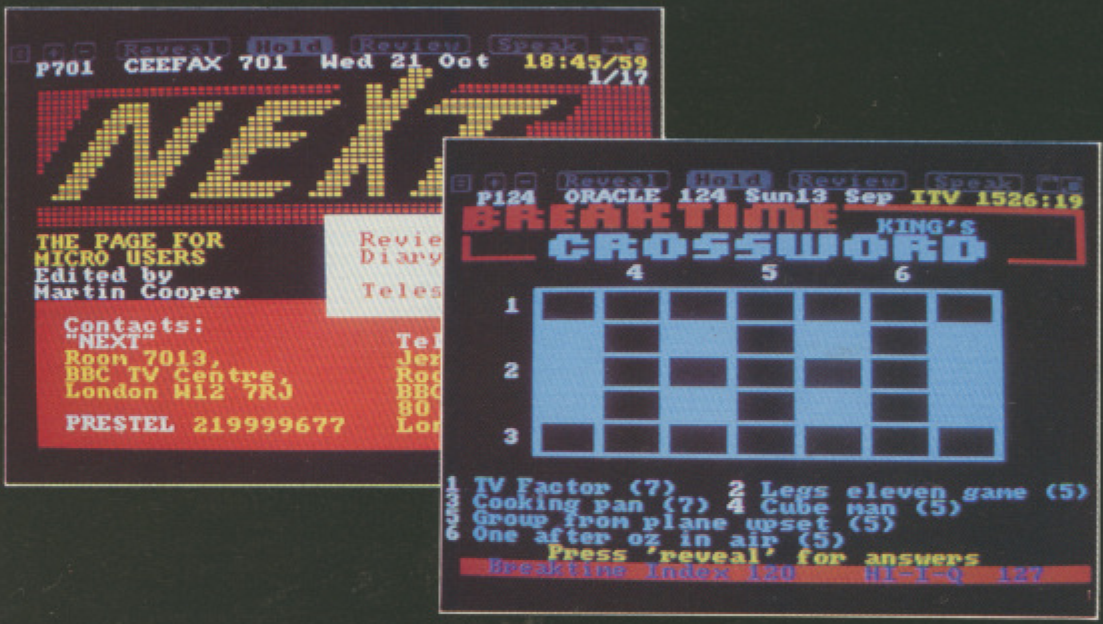
Rounding off the Project menu are Retune, to modify channels, About (Terry Cassell wrote it – whoops, there goes that option's one surprise), and Quit; this last can also be selected by clicking on the top left hand corner of the program screen.

NEXT along is the Display menu. The first three options mirror gadgets – Reveal, Hold and Review. Reveal displays any hidden text, Hold prevents the screen from updating if a new page is sent on the same page number and Review does the opposite.

Screen to front and Screen to back, the next options, reveal or hide the Workbench. Then comes Set Language – the teletext character set can be modified to display foreign codes for several European languages or English-specific stuff like the pound sign. There's another option to set the default language for next time. Finally the gadget bar can be displayed or hidden by two more options.

Select is where things start to get interesting. As previously mentioned, here be monsters by the name of Set Subcode and Cancel Subcode. Regular users of teletext will be aware of the way in which a number of pages can be displayed on one page number. For example, take Channel 4's rock and pop news magazine on 540 (you should, it's really quite good). It only has 10 page numbers from 540 to 549, yet regularly gets around 50 or so pages of information transmitted. Someone reading page 541 will have about a minute to read one page before it's automatically replaced by another.

Each actual page in such instances has a subcode, a time-related piece of ▶



data sent out with the rest of the page. If that matches the subcode in the receiver the page is displayed.

The idea was that television sets could be told to display a certain page at a certain time. Some experiments are being made to distributing information by tagging it to "silly" subcodes and then selling those subcodes. It's a shame, but the Microtext can't be programmed to spend all day sifting through subcodes in an attempt to scan for such interesting snippets. Add that to the wish-list.

THE manual is thorough and well-written, with lots of interesting information about teletext as well as the Amiga-specific stuff. Perhaps some more technical information about how to program the thing from outside the Microtext software would help.

There are lots of oddball things you can try with an automated information retrieval system like this, for example scanning the TV listings until a certain programme is found when details are printed out. Or the video programmed.

There's already a bulletin board in the UK which offers a teletext gateway, you phone up the BB and get live teletext. Such things are possible with the Microtext, and can be tacked on to the bottom of the wish-list.

The adaptor works wonderfully, exactly as advertised. The software is mostly well-behaved, although it is possible to select the gadgets when they are hidden and some of the menu options are in surprising places

It's worst sin is dropping you into Workbench when a system error, such as the disc write-protected or the printer offline, raised an Alert. If you click on Cancel, the Workbench peers bluely up at you until you click on the FrontToBack gadget.

The hardware is fascinating; most of a teletext television in the space of a good novel. It performs well – getting teletext from a weak signal is more reliable on the Microtext than it is on my slightly elderly TV.

The one warning is that indoor aerials won't work well, primarily because the Amiga/adaptor/monitor combination radiates enough radio noise to jam TV signals for a good few feet. You won't even be able to watch TV on the monitor satisfactorily. And the old coathanger poked into the back is right out.

Also, teletext is sensitive to ghosting; if Bett Lynch is followed around the Rover's Return by a pale echo of herself then the adaptor will have a hard time even with a strong signal. A swift adjustment or replacement of the aerial will usually cure things.

By the way, most people don't realise that TV aerials and leads need replacing every 10 years or so, or the signal starts to get worse. Just think, you might be watching rubbish and not realising it.

ONE thing; it's a shame that either the teletext adaptor's or the Amiga's audio can be plugged into the monitor, but not both at once. Everything else can be left permanently connected. Perhaps another switch on the front panel?

Also for some reason the two phono plugs which carry audio and video to the monitor are not labelled. If you plug them in and you get a loud buzz, says the manual, you've got them in the wrong way.

The Microtext is a bargain, considering that there's a TV tuner included which will magic your computing setup into something with the picture quality of the very expensive Sony component TV series.

It's useful as a way of getting lots of information into the Amiga, as a sort of teletext video recorder – no normal VCR can record teletext pages – and as the basis for a teletext machine for the visually handicapped.

It's fun, too; a product with lots of intriguing expansion possibilities and an easy sell to the rest of the family.

Altogether, much less of a gadget and more of a useful peripheral than might first appear. There is a new release of software due soon; together with the Amiga BBC emulator and the fair amount of free programs sent out by the BBC over teletext there could be treats in store. A programmers kit is planned so that you can turn your wish-list into code.

And anyway, what other peripheral can remind you in mid programming session that Fawlty Towers is about to start AND let you watch it?

REPORT CARD

Microtext. Tel: 0705 595694
Amiga Teletext Adaptor
£143.52 inc.

USEFULNESS
Even if you already have a teletext TV the programability of the Microtext adaptor makes the system very useful.

EASE OF USE
Plug in and go, the self-tuning and software control make setting up and using the adaptor a doddle.

INTUITION
A properly written program, sliders, multi-tasking. You can leave the unit running and forget about it.

SPEED
Limited by the speed of the teletext system. Blame sloth on the BBC and IBA.

VALUE
Nigh on £150 would buy you a second drive or extra ram. These must be regarded as more urgent purchases.

OVERALL 87%
A really neat peripheral. It can be left plugged in and is easy to use. A highly recommended purchase.

Brown Wagh **DIRECT**

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IF you're not familiar with the concept of a mailing list program and tempted to confuse it with mail merge routines in word processors, here's a two-minute tutorial guide.

The mail merge concept goes something like this: You type in a letter with certain items left in a coded form. Here's an example from your not so friendly bank manager:

Dear A1 A2,

At the end of A3 you were A4 pounds and A5 pence overdrawn. Perhaps you could call to see me on A6 at A7 when we can discuss the matter.

Using the facilities of the mail merge program, you can incorporate the appropriate name and address at the top of the letter, replace A1 with Mr or Mrs, A2 with Bloggs or whatever and so on.

It's a means of computer-customising correspondence, and it's a very powerful tool.

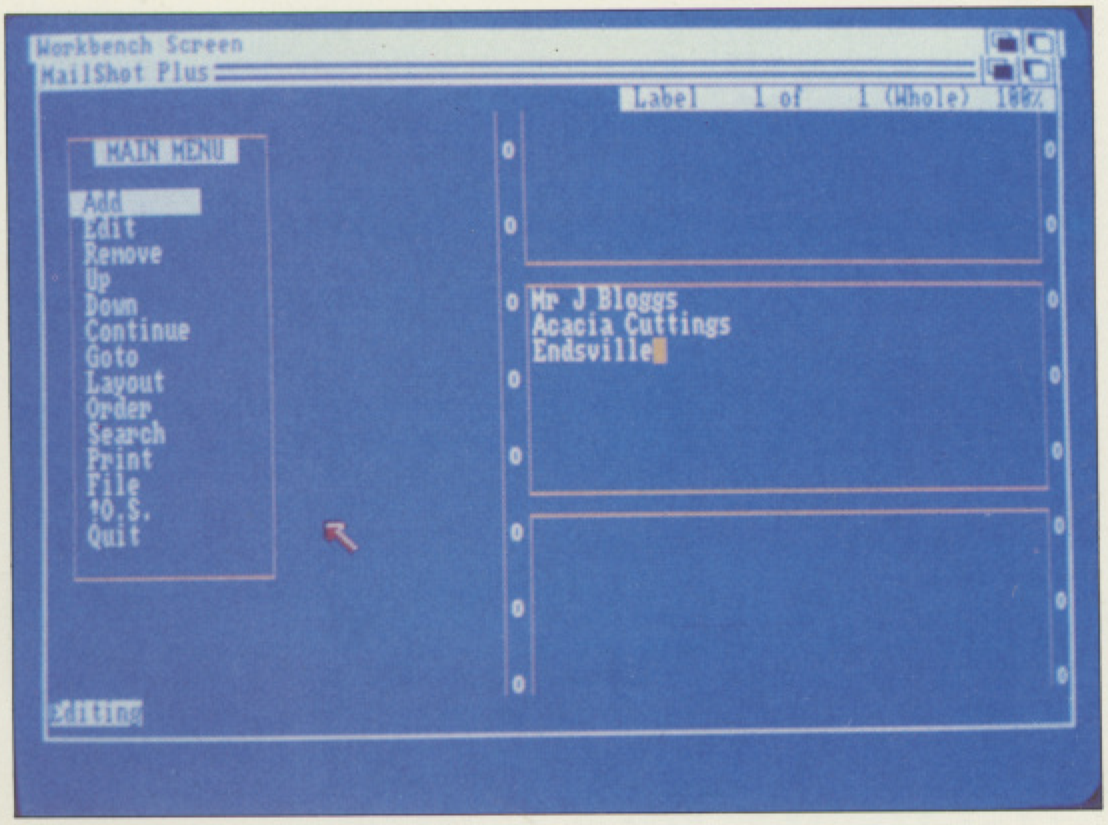
The mailing list serves a related, but different job. It's a list of names and addresses which can be entered, edited, sorted and printed either as a whole or selectively.

Take a large organisation which has all its staff on a computerised mailing list. You may want a memo on this month's special offer to go out to all regional managers and their deputies, a note on what you intend to do with cars parked illegally in reserved parking bays to all staff below a certain grade, or an invitation to everyone living in the London area to attend the annual "fun" Christmas party.

That's the kind of job any well-behaved mailing program will perform. And it doesn't have to be a list of names and addresses: You could put your record collection catalogue, club membership list,

On-screen labels

Rex Last dips into the new Mailshot Plus program and finds a great deal to like



Main menu

I BELIEVE the most mind-bendingly boring typing chore for the office junior in the pre-computing days was hammering out a list of names and addresses on the battered old portable with a nylon ribbon so ancient you could see through it.

Now such chores should be a thing of the past. When the computing world woke up to the fact that the micro was not just a toy for scientists, it began to invade the office environment, first as a spreadsheet, then as a word processor, and from there right on through the whole range of office tasks – except for making the boss's coffee and biscuits, that is. And rumour has it that Silicon Valley is working on that one.

The mailshot program is certainly with us to stay. I suspect that in the early days of office automation, people were so piteously grateful for any program that bashed out address labels that standards were not of the highest. Nowadays there are certain tasks that any self-respecting mailshot program ought to perform.

I've been taking a look at Mailshot Plus from Digita, a company with a solid track record in the field of business software, and I'm here to report as the reviewing equivalent of the office junior on what I've found.

I promised myself in my early days as a reviewer that I would never take my readers on a guided tour of the packaging of the software I'm describing. But I'm prepared to break the habit in this case, since the box that crashed through the letter box is of huge proportions, but when I

plant labels in a market garden, in fact, any small chunks of similar information that can be recorded in address label type format.

So, while a mail merge program is linked to the word processing power of the computer, the mailing list is akin to a database package. It's up to you to make the kind of decision as to which product most closely matches your needs.

And the old corny but none the less vital piece of advice which goes hand in hand with that – not just your present needs, but requirements for the foreseeable future.



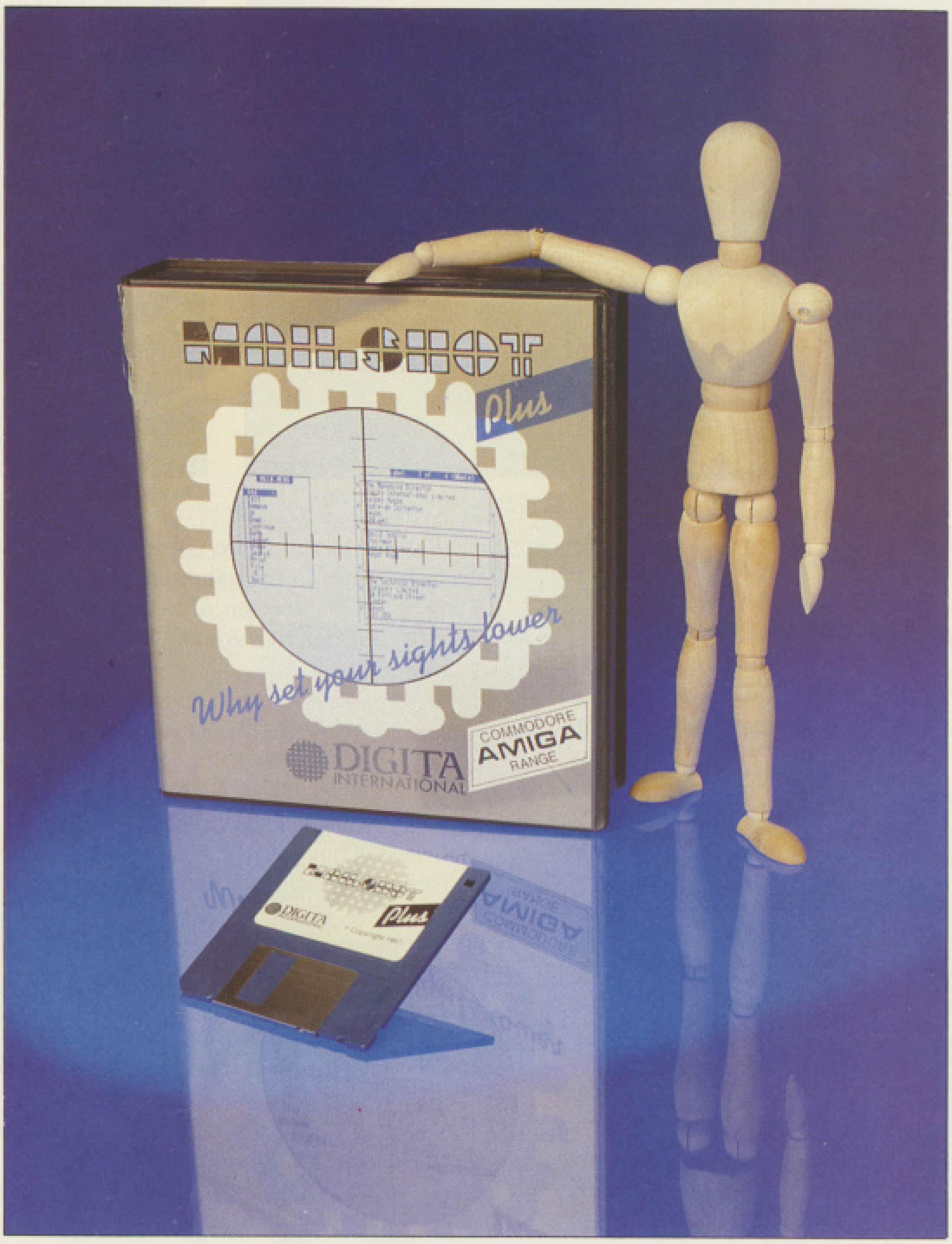
opened it – steeling myself to facing a 300 page manual and a dozen master discs – all I found cuddling together for comfort in the bottom of the box was one little disc and a 40 page manual.

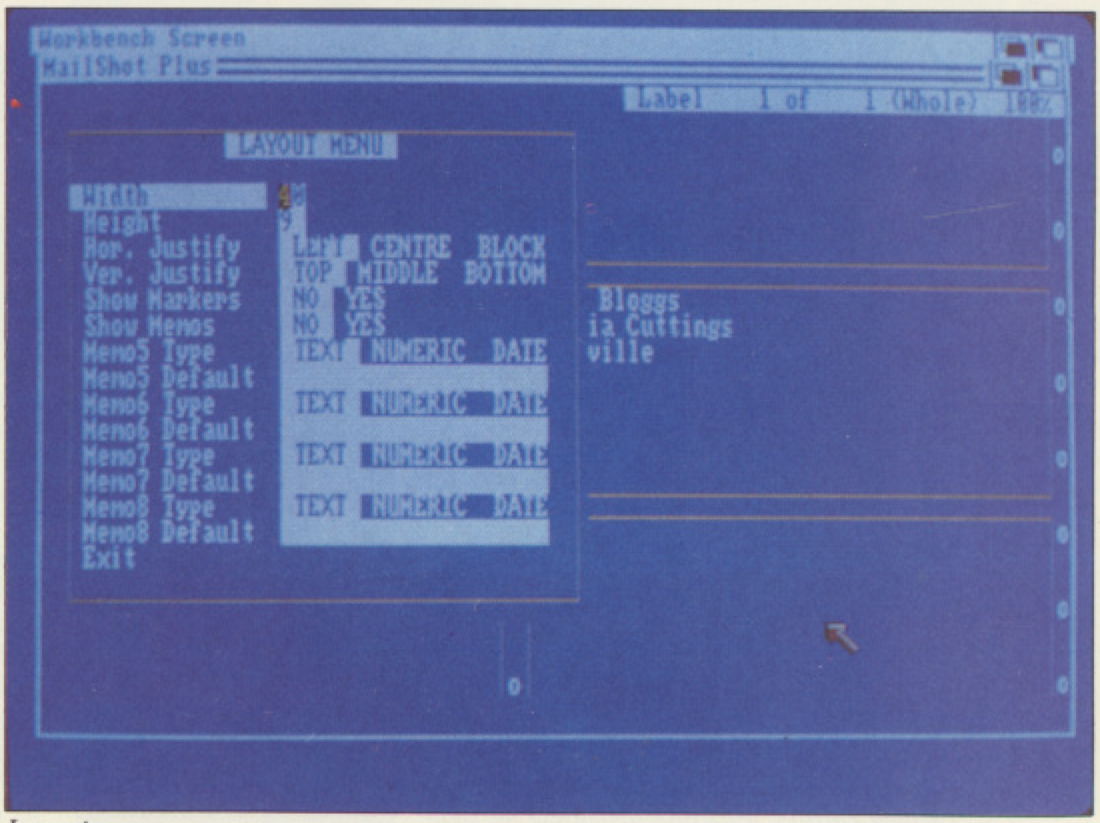
Well, perhaps Digita bought a job lot of cases and couldn't think of anything else to do with them. So I breathed a sigh of relief and powered up the Amiga to see what, if anything, marks this mailing package off from the rest of the herd.

THE term wysiwyg is one that's normally associated with a word processor. Meaning what you see is what you get, it implies that typestyles and layouts appear on the screen more or less in the same way as when you press the print button and out it all comes in hard copy.

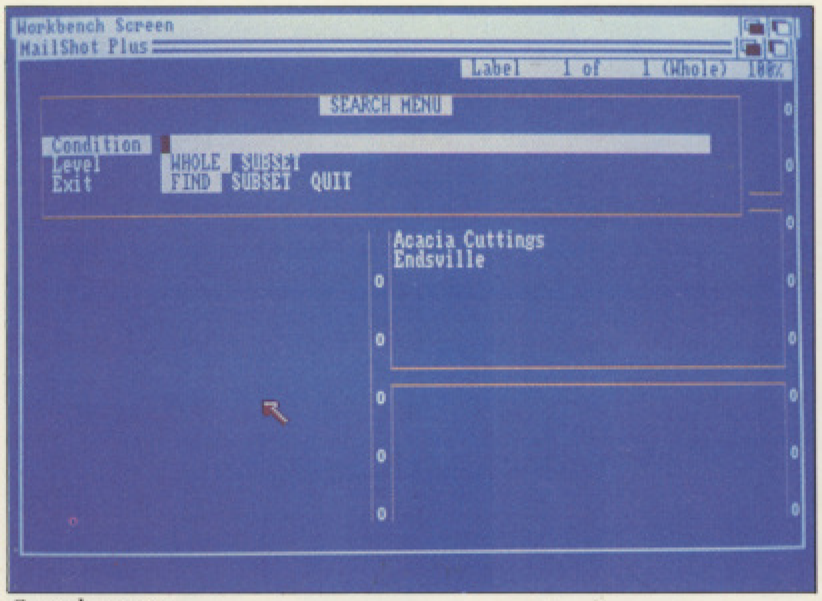
To find it associated with a mailing list program was a little odd at first blush, I must admit, but the concept works extremely well on screen. To

►

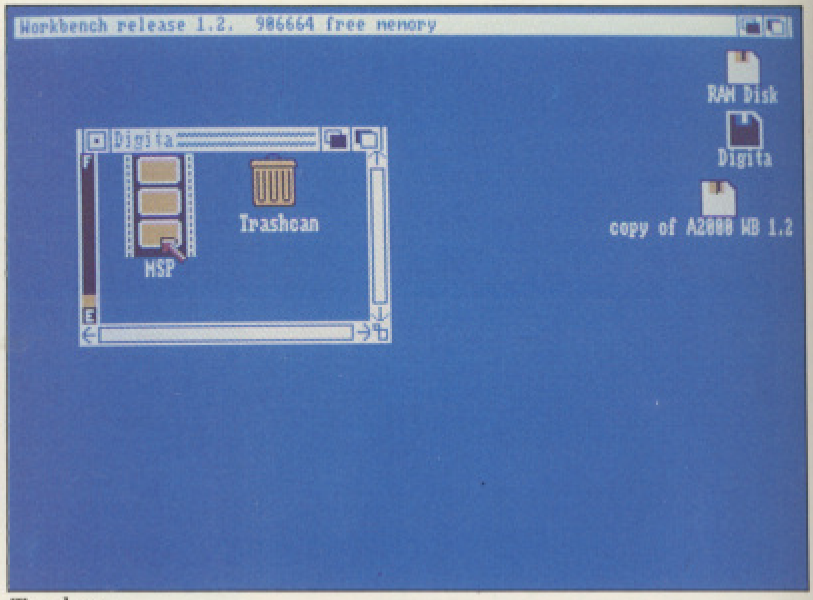




Layout menu



Search menu



Trashcan

◄

the left, there's a menu list which can be accessed by mouse, cursor keys or initial letter, and on the right a series of rectangular boxes just like labels, even down to the tractor feed holes on either side.

There's room on the screen for one full default size label, plus half of its predecessor and the next in line.

As you enter each label, the list scrolls up politely, and the impression is one of working with a genuine continuous list rather than a series of computerised snapshots in which you are only allowed to see one label at a time on screen.

Take a look at the options down the main menu on the left of the screen, and let's begin with a word of warning. As I said a moment or two back, you can access the options in one of three ways, and this can be a mite tricky if you're a hasty and impetuous type like me.

I'd hardly keyed in the first address label than I inadvertently found myself in the middle of the Layout menu doing silly things to the default label list, and when I extricated myself from that predicament I found I had squeezed the width of the labels so that they looked like the opening credits of a CinemaScope film projected through the wrong lens.

But I gritted the ancestral teeth with a measure of self-control – and within 10 minutes or so the package and I were on the best of terms.

The system is simplicity itself to use and full of neat and thoughtful touches:

- An option to split long lines or truncate them.
- Automatic detection of duplicate labels, one of the bugbears of any large label list. It can be quite money-wasting to send two copies of the same letter to the same addressee.
- A good selection of search criteria, with options like AND, OR, and so on.
- The system can sort on any line, and there are facilities for surname sorting, subset sorting, and a marker sort system.
- A useful feature called "memo lines". They can contain information (not for printing) such as telephone numbers, dates, or any comments you wish to make. These can be shown on the screen labels or concealed.

While it seems blindlingly obvious to me, there's precious little point in plonking a piece of software on to a computer, giving the novice user a quick tutorial on which buttons to press, and then leaving the poor soul to get on with it.

WHAT is so important – and so often overlooked – particularly in business software, is a description of the ideas behind the software and its potentiality. People used to clattering out labels on a mechanical typewriter might be tempted to turn a mailing list package into a computerised form of their familiar activity, without realising that, if they adapted their work patterns and data storage to the package, they could enhance their usage of the system almost beyond recognition.

Here Digita scores again. In a clearly written manual, there is a section on how to get the best out of the package, and tips and hints on maximising its impact.

The chief limitation of this program is that it can't be incorporated into a mail merge context, where you can customise each letter according to the particular circumstances of the individual or institution you're writing to. But Mailshot Plus does have the ability to generate Ascii files which offers good portability across to other systems which do function in that manner.

All in all, it's difficult to fault Mailshot Plus, and it's a pleasure for a reviewer who all too frequently is on the receiving end of grotty software to have had the opportunity to explore an unfussy, user-friendly and really professional piece of business software. If mailing's your game, Mailshot Plus may well be the name you're looking for.

REPORT CARD

MAILSHOT PLUS
Digita International
£34.95

USEFULNESS
Very practical with some powerful facilities, thoughtfully put together.

EASE OF USE
Once you get going it runs as though on oiled wheels.

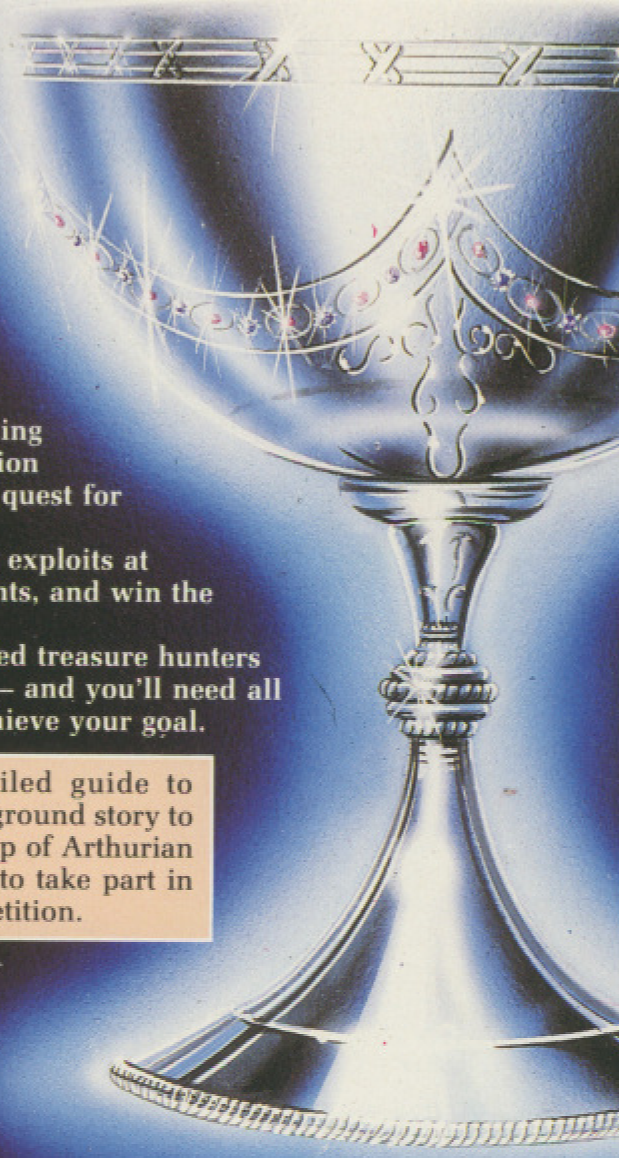
INTUITION
Not written for the Amiga but skilfully adapted so that it blends well.

SPEED
Does its job at first class mail speed because all the data is memory resident.

VALUE
Even the simplest mailing list beats retyping but this offers plenty of other features.

OVERALL *69%*
A nifty little program which won't break the bank even if you only use it for Christmas cards.





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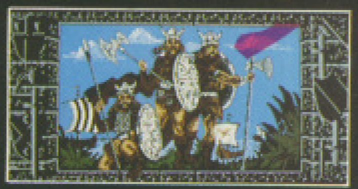
Inside every box there's a detailed guide to playing Level 9 adventures, a background story to the classic legend, a parchment map of Arthurian England – and full details of how to take part in the Quest for the Holy Grail competition.



Screen shots from Atari ST version







MANDARIN SOFTWARE

Level 9

Format	Tape	Disc	Price
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Amiga		●	£19.95
Amstrad PC, IBM PC and compatibles		●	£19.95
Amstrad CPC/PCW/ Spectrum Plus 3		●	£19.95
Commodore 64	●	●	£14.95
Spectrum	●		£14.95
Amstrad CPC	●		£14.95
*Atari XL/XE	●	●	£14.95
BBC Master		●	£14.95
*Apple II		●	£14.95
Macintosh		●	£19.95
MSX 64K	●		£14.95

**These formats and all tape versions are text only.*

Note: Tape versions have three cassettes in every package

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☐ Please debit my Access/Visa number: *Expiry date:* [/]
[| | |] [| | |] [| | |] [| | |]

Signature ____________

Name ____________

Address ____________

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Send to: Mandarin Software, Europa House, Adlington Park, Adlington, Macclesfield SK10 4NP.

R287

S-s-super

Chris Jenkins is a man with two ears and a pen. He multitasks his i/o ports to review in depth the Datel Pro Sampler Studio



A FEW issues back we looked at a wide selection of sound samplers for the Amiga. The PerfectSound, FutureSound, Pro-Sound and Sophus systems all have their advantages, but in most cases these are offset by niggling faults such as disappointing sound quality, fragile hardware or excessive cost.

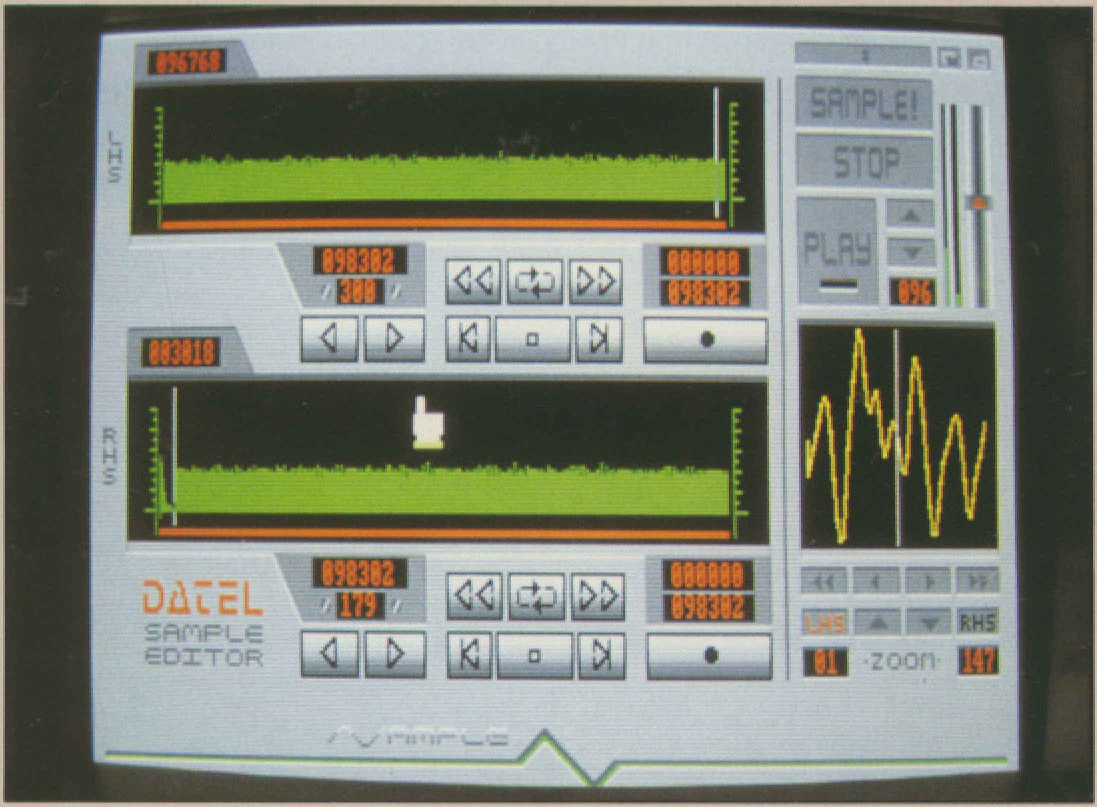
Now there's an alternative which might prove to be the best buy of the bunch, combining simplicity, style and reliability. Datel's Pro Sampler Studio package costs £69.99, and includes hardware, sample editing software and a fairly sophisticated multi-voice tune-player, the Jammer. Like the samplers we've looked at in the past, it uses 8 bit analog-to-digital conversion, but has anti-aliasing filters to cut sound distortion. Sound quality is as good as, if not better than, the opposition. Although it has no Midi facilities, the Pro Sampler is part of a developing product range which includes the Midimaster interface, and the forthcoming Music Manager sequencing package.

The Pro Sampler hardware is a small beige box featuring a short ribbon cable with a connector for the Amiga's parallel port. Since the gender of the connector differs between models, you have to specify which Amiga you have when ordering.

On the rear of the sampler are three sockets. The first is a five-pin 180 degree DIN socket for line-level signal inputs, suitable for connection to the outputs of a stereo tape deck. Next to that is a quarter-inch mono jack socket for microphone level inputs, and lastly there's another quarter-inch mono jack for line level signals. A small red LED on the front of the unit lights to indicate that it is receiving power.

As you autoboot the software (or load from the Workbench) you'll hear an example of funky music digitised using the Pro Sampler. You can then opt to enter either the Sampler or

s-s-sounds



Sampling software stereo waveform display

Jammer programs. The screen displays of the Datel software are beautifully designed, with a metallic control-panel look. The main display shows two waveforms displayed in separate sample windows (left and right stereo channels), a zoom box, and tape recorder like record and playback controls.

The sampling process is pretty straightforward. Plugging your sound source into the sampler, you select the Realtime Display option from the Extras pull-down menu, which brings up an oscilloscope display of the incoming waveform. If the peaks of the signal are flattened, or they are under half the height of the grid, you should adjust the incoming signal level to obtain the optimum sampling level.

There's no hardware or software input volume control to deal with – which could be an advantage or a disadvantage depending on what you're trying to sample. Clicking on Exit returns you to the main display, where you can now click on one of the two Record buttons to arm the sampler.

The incoming sound is shown on a volume display to the right of the screen. It will activate the sampler once it passes the automatic trigger level, shown next to the volume display. This is set using up/down buttons, or you can over-ride the automatic trigger level by clicking on the left mouse button to start sampling. The waveform of the sample is drawn in the window, taking about a second.

To listen to the results plug your Amiga's outputs into the hi-fi and click on the Loop button to play back the sound continuously. Volume can be controlled with a slider, but to hear its effect you must stop and re-play the sample.

You can then sample another sound on the right-hand channel, even while the left-hand channel is playing. The two samples can be played independently, or in synchronisation. There are also individual and main Stop buttons.

Once you have your sample, you can start playing about with the pitch. Incrementing or decrementing the rate counters affects the original sampling rate, and indirectly the length of the sample. The rate can be varied from 124 to 998, corresponding to the Amiga's DMA playback system.

By placing cursor lines on the display, you can set the start and end points of the sample. Clicking on the start and end buttons for each sample brings up a digital display of the cursor positions to six places. Another set of buttons allows you to reset the cursors to each end of the whole sample, and the current sample length is shown by a red bar below the display.

MOVING the pointer into either display window and clicking on the waveform display, brings up a magnified section of waveform in the zoom display. Again, a digital readout gives the exact cursor position. Buttons below the zoom window allow you to step slowly or quickly through the waveform, searching for good looping points, and there is a wide range of zoom levels.

The pulldown menus allow access to some incredibly advanced options. Samples between the Start and End points can be saved in "raw" or in IFF format, so you can use them in many other sound programs.

There are options to save one-shot or repeating samples, and either single, three octave or five octaves samples, though this takes a long time and uses up about 70k of disc space. Another menu allows you to reverse samples – you can of course reverse them again to return to normal – or to copy a waveform from one channel to another.

You can create pseudo-stereo effects with the Phaseshift option, which slightly delays one sample. If the two

▶

samples are then played together, you get lovely phasing effects.

It's also possible to define and copy an area of waveform to another part of the window, to erase a section of sample, or to mix two samples together. By shifting then combining identical samples you can create delay and reverberation effects.

Another impressive option, though of little practical use, is the 3D waveform display. This draws a wire-frame model of the entire sound envelope, as opposed to the realtime display which is in two dimensions.

The Wave Edit page actually allows you to redraw the waveshape of your sample, perhaps to eliminate unwanted clicks or to make a perfect loop. As on the main display, scanning buttons and digital displays allow you to position your cursor exactly, while waveforms are redrawn simply by holding down the left mouse button and moving the cursor in the window. Beautifully simple.

JAMMER is a four-channel step-time sequencer. Quitting the Pro Studio and loading the Jammer brings up the main display, which fea:ures a five-octave keyboard display at the bottom of the screen. At the left are four buttons which switch on and off the tracks while recording or playing, sliders which control volume of the four tracks, and a master volume slider, while to the right are the recording and playback buttons, laid out like those of a tape deck.

There are also what appear to be four VU level meters, but in fact these serve no function – they're purely for decoration.

To record a tune, load up the sound you want to use, select Record, then pick out the tune on the keyboard. A counter indicates the number of notes you have played, and rests can be inserted using a button on the right.

To correct mistakes you can use the review/rewind function to count backwards. There's also a marker function so you can move directly to any required part of the tune when editing. Having finished, select ZERO RETURN, to record another track.

To enhance your playing, you can switch on the two-note or three-note chord, which multiplies the number of notes you play in an impressive way. Unfortunately you're limited to major chords, and equally obviously this takes up more than one track. Though not everyone might find step-time composition ideal, in the absence of Midi facilities it's probably a better option than, say, trying to pick out tunes in real time on the qwerty keyboard.

There's also a drum machine feature which adds a simple boom-chick effect. Sync allows you to start the drum machine as you play your first note, and there's a separate tempo slider for the drum machine, which takes up Track Four if selected. Completed tunes of up to 9,999 steps can be saved in Jammer's own file format.

Jammer can be made to autoboot with any required sounds and tune, and can also run as a task. Provided you have enough memory, pressing AMIGA-M will flip to the CLI from where you can run another application.

PROGRAMMER Roy Harding and consultant Barry Walsh, who wrote Preferences at Commodore-Amiga, have done an excellent job on the Pro Sampler. With the benefit of having looked at the alternatives on the market, they've come up with a user-friendly, flexible and economical package.

Datel's decision to keep the Pro Sampler Studio relatively simple and inexpensive is certainly the right one. Having created your samples, you will be able to use the IFF files with the £34.99 MidiMaster interface and £39.99 Music Manager sequencer; then you can get into Amiga music in a really big way.



Jammer 4-channel playback display

REPORT CARD

Pro Sound Sampler Studio
Datel Electronics 0782 273815.
£69.99

USEFULNESS
A good sampling package, cheaper than its rivals but just as good.

EASE OF USE
Plug in and go. Jammer is a simple way to build up multi-track tunes.

SOFTWARE
A competent program written by a couple of people who really understand the ethos and hardware of the Amiga.

SPEED
Runs as fast as you need to sample most sounds, but speed is not critical for this kind of job.

VALUE
Best value among a range of samplers in an increasingly competitive market.

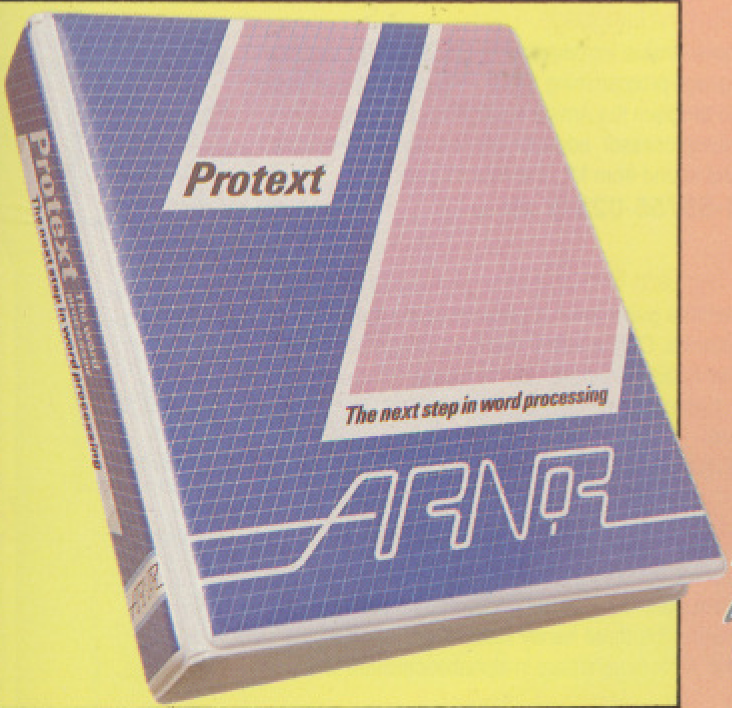
OVERALL *79%*

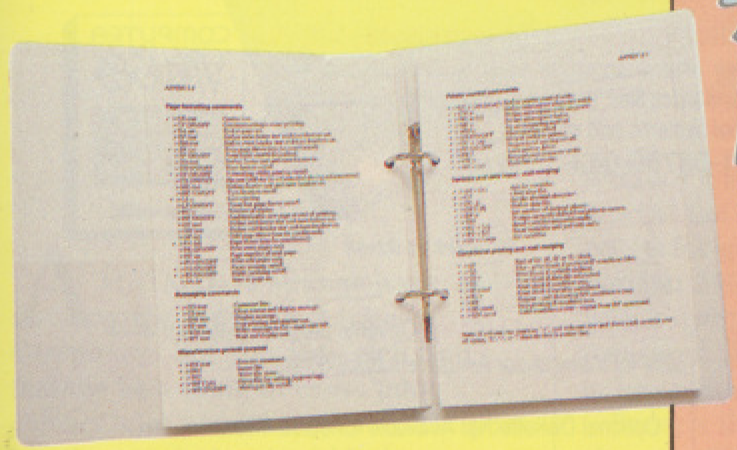
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– Reviewed in Amiga Computing January 1989

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AMC3



Modem marvel

Simon Rockman used to work for Alan Sugar; now he's a happy customer

AMSTRAD, a strange name to come across in *Amiga Computing*, but you may well find that the best thing to come into contact with your Amiga's RS232 port has the words Amstrad Modem SM2400 plastered across the front.

Amstrad has been producing modems for a while now. Its portable PC was hailed as a bargain because it contained a high specification modem and yet cost under £600. To buy a similar modem alone would have cost £500. Then Amstrad launched the MC2400 which plugged into the slots inside a PC – so the only Amiga owners who could benefit were those with an A2000 and a bridgeboard – oh, and Sidecar owners (both of them).

Now Amstrad has seen fit to produce a stand alone unit, and that is what the S in SM stands for. No points for guessing the M. The number 2400 refers to the speed at which data is transmitted. This is measured in bits per second, bps. Not to be confused with baud.

Baud is the rate at which the tone changes. If there is one tone and it changes 1200 times a second it can be decoded to 1200 bps. But if there are two tones, still changing at 1200 times a second, and so still 1200 baud, there are twice as many bits going through the system, hence 2400 bps.

Think of it like a crossed line. If you were able to understand both the person you called and the person you got a crossed line with you would be capable of receiving information twice as fast.

High speed modems are clever like this. Anyone who claims to have a 2400 *baud* modem is more likely to have a 2400 *bps* modem.

In the bad old days of electronic communications, modems ran at two speeds 110 baud and 300 baud. This was when only one tone was used at a time and so things travelled at 110 or 300 bps. Data was sent and received slowly but simultaneously. Communications freaks can't cope with English and refer to this as duplex, or full duplex.

Then British Telecom invented Prestel which was designed to be read without the user sending back much data. For this purpose they imposed a 1200 baud in, 75 baud out standard, this being the best they felt the phone lines could cope with.

Technology moved on, and modems which could run at 1200 bps dropped in price to the level where home users could afford them. Full ▶

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blown 2400 bps modems still cost around £500, except for the Amstrad. And that is what Alan Sugar does well, selling for £500 what IBM would charge you a grand for, plus VAT, service fee and still make you feel like a cheapskate.

There are other cheap modems around but few have the precious green circle logo which means that they are "Approved for connection to direct exchange lines of public switched networks run by British Telecom and Hull City Council". (Hull has a private phone system.)

THE approval procedure is the way the British stop the market from being flooded with tatty telephones and modems, the way the French test every video recorder which is made in Japan before it can be sold in France. Unfortunately the French are much better at being awkward than even BT, so it is still legal to buy and sell unapproved modems – you just can't plug them in. Amstrad wins both ways. It makes videos in the Southend factory to sell to the French and has approval to sell cheap modems in the UK.

The Amstrad SM2400 is quad standard, which means it works at 300, 1200/75, 1200 and 2400 bps. It also works at 75/1200, which is only of any interest to people running bulletin boards. International standards give these speeds special numbers. V22 is Eurospeak for 1200 bps, V21 means 300 bps, V23 1200/75 and so logically enough 2400 bps is V22bis. Well it makes sense to someone, I'm sure.

With these speeds you should be able to connect to practically anything which wants you connected to it. While 1200 bps services are now quite common, 2400 bps systems are still rare. There is a good reason for this. The telephone lines can't provide the extra levels of clarity needed for 2400 bps operation. Yes they should, and if you live in a good area, and are talking to a good area, and BT has kept all the bits of string in between good and damp, you might get away with it.

One solution to the problem of BT's lines not being up to the job is error correction. Special modems offer a standard called Microcom Networking Protocol. Pace in Bradford makes a box called an ECU (error correction unit) which plugs in between the RS232 lead and the modem which works very well, but this costs £150.

Still, if you really want to use 2400bps it is worth it, otherwise you will find yourself using the SM2400 at 1200bps to log into 2400 bps services.

Software exists to provide MNP for the IBM without any extra hardware and is being developed, albeit slowly, for the Amiga. We can wait. There are not very many places to call which use MNP. Only the Cix Bulletin board and the Mercury X25 network – which lets you talk to distant systems – have MNP modems. Some MicroLink/Telecom Gold users are already accessing the service using 2400 bps and MNP.

Any modem worth buying these days offers Hayes command codes, which allow the computer to control the modem. Hayes compatibility is to communications what Epson is to making smudges on bits of paper. If you are a real comms freak you can have hours of fun tinkering with the Hayes commands, but any half decent piece of terminal software will look after all that for you.

Setting up that software is more difficult and will have you resorting to the manual. You cannot call up a menu of commands from the keyboard as you can with some modems.

The SM2400 does not store telephone numbers, leaving that job to the terminal software. And to be fair if you have an Amiga with at least half a megabyte of ram it seems silly to pay extra for Amstrad to put 4k into a box at the other end of a bit of wire.

MANUALS only get read when something has gone wrong. If you understand about modems and just want to know the correct syntax for commands then the Amstrad manual, written by Robert Goode, is excellent with the information well laid out.

If you are a new user the sections on how to wire a plug correctly are condescending and the description of what does what plummets into a techie mire. Still, if you are really green the best advice is to get someone who understands what is going on to explain. No book will be able to teach you what to do.

The main purpose of the manual seems to be to hold all the warnings about connecting the modem to unapproved equipment.

The SM2400 is remarkable value for money. At £286.35 it is a couple of hundred pounds cheaper than equivalent approved modems. Unapproved modems seldom work at 300 and 1200/75 baud, and are as a rule unreliable.

IT is not as cheap as it could be. Amstrad's PC card has a rrp of £228.85 and is often discounted to below £190 with Mirror II software for the PC. The software is worth more than £50 – it is clever in the eyes of PC owners in that it multitasks, so the £300 is a premium in Amstrad terms.

The case colour is close to that of the Amiga's and it works faultlessly. The review model has been on test for a couple of months, used daily and you have to look very hard to find fault. I am glad to say that in true picky reviewer's fashion I have done so, and would like a reset button. I have been using the public domain terminal Comm1.34 on both an A500 and an A2000 with no problems.

All in all a highly recommended product.

REPORT CARD

SM2400 Quad Standard Modem
Amstrad 0277 228888
£228.35

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Like any modem, the SM2400 opens up a world at the end of your phone line.

EASE OF USE
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SOFTWARE
Amstrad is not likely to supply Amiga software, but PD terminals suffice.

SPEED
Full speed 2400bps is a joy to use if you can find a service which will work.

VALUE
It is difficult to knock a well made product selling for nearly half the price of its rivals. We managed it.

OVERALL *87%*

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Typing mistake

'The typewriter is dead.... long live the typewriter'

To downgrade your Amiga to a PC is one thing but to emulate a device first patented in 1714 is a serious step backward. It certainly isn't the type of thing Steve Rackley likes

THAT'S what it says here, anyway. With word processor software being relatively cheap these days, and plain text editors cheaper still, I wouldn't have thought that there was much of a market for a typewriter emulator, particularly one costing £40. But here it is.

Loading is simple enough, and the program can be run from the Workbench or CLI. In the Workbench environment, double-clicking the Digita disc icon brings up a window much too large for the three icons it holds – E-Type (a gravestone, not really evocative of a resurrected typewriter, but maybe apt in the long run), Read.Me, and a Trashcan.

Funny, there's supposed to be demos of Digita's other products, according to the manual. Oh well, let's look at Read.Me. You can't do that with E-Type, you have to use the Notepad, or use E-Type to send the file to the printer. Anyway, all it says is that the promised demos are "not available on this disc at this time" – you have to send them another £1 for another disc.

Setting up the printer, and here's a bit of silliness – you can't do it from within E-Type. If you don't have an Epson-compatible printer (the supplied default), you must use Ed or similar to edit the supplied file and insert the control codes for your printer.

There are problems. Firstly the program doesn't seem to like long control sequences, which meant that I couldn't set my DataProducts printer into NLQ properly – the string <ESC>R,103,$ apparently upset E-Type, so that although the printer was set into NLQ mode OK, it was also sent the next line from the ►

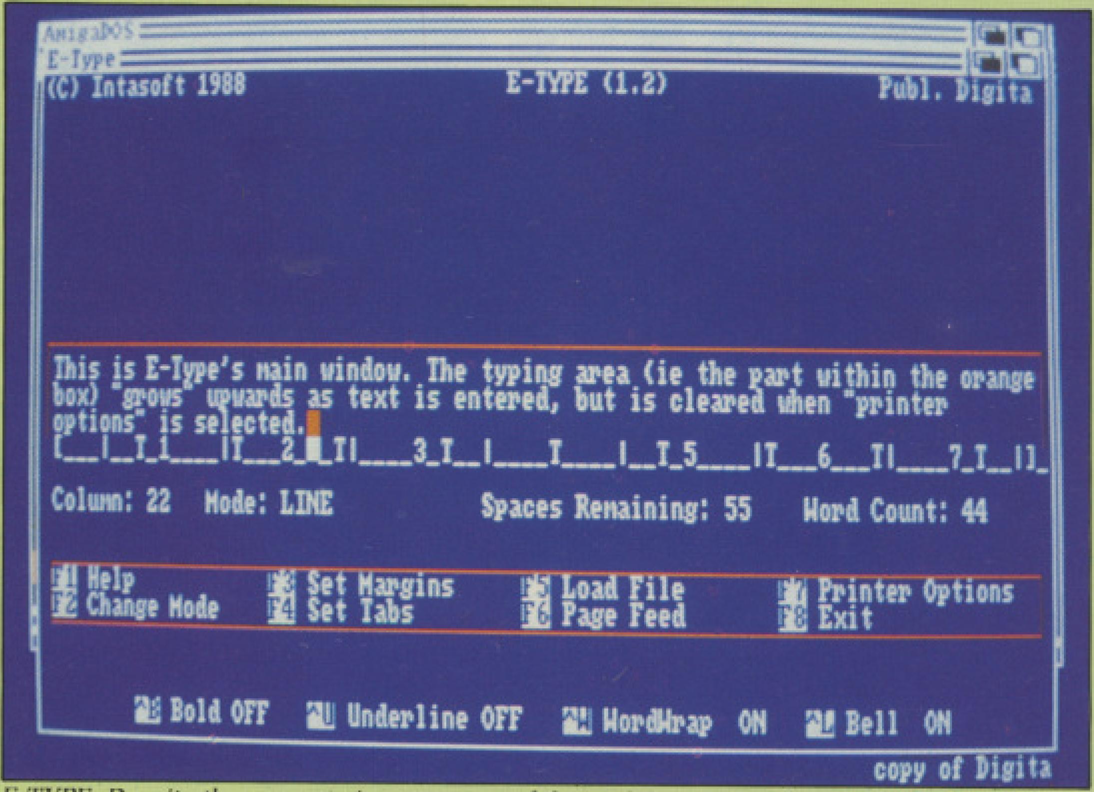


◀

control file, seemingly without the leading <ESC>, since the printer printed it instead of acting on it.

So I hooked up my Fujitsu instead in IBM Graphics Printer mode (very nearly Epson-compatible). Nope – NLQ problems again. In this case, the printer expected <ESC>%mn, where m and n are non-printable characters, decimal value 0 through 2, to select print mode.

Unfortunately % is used to indicate a replaceable value for margin settings, and it seems that E-Type intercepts it even if the control sequence isn't "set margins". It didn't work, anyway. I also feel that the inclusion of at least one (preferably several) user-defined entries would have been useful for things like sub/super-scripts.



E-TYPE: Despite the prompts is more powerful – and faster

EVENTUALLY I gave up on NLQ and carried on with the Fujitsu, where everything else could be set OK. I'm glad to say that the rest of the program worked fine – but then accepting characters and sending them to a printer isn't exactly hard. E-Type multi-tasks quite happily, but makes little or no use of any other Intuition features.

You can drag the main window up and down a bit, although it fills most of the screen, and flip it to the back or front of the display, but there are no gadgets for rodent-lovers.

Function keys are used to select Bold, Underline, Word wrap, Help – basically the same information that the manual gives – and Bell – warning near end of line – and to set tabs and margins, print from a file rather misleadingly called Load File, send a form-feed, select the Printer Options screen, and exit.

An option to centre text on the line is missing. Exit gives no second chances – you're asked if you want to save your current setup or not, but there's no way to cancel the exit.

The printer options screen allows selection of bold, underline, condensed, enlarged, italic, pica/elite pitch, NLQ and proportional spacing, and allows you to set the left margin. There's also a Set right margin in the printer control file, but I could find no way to select it.

The main screen shows some of the selected options, plus the last 12 lines typed, but for some reason these lines are cleared when you return from the Options screen, except for the current line if you select Options in mid-line.

You can send output to a file by altering the PAR: device line in the control file to a filename, but unfortunately E-Type seems to output each character followed by a space and a backspace, and then drops the backspaces when you use it to send the file to the printer. Result – double spaced characters.

You can send the output to a file and then COPY the file to the printer, but it's more trouble than it's worth. Pity you can't specify a printer control file name to E-Type when you load it, as you could then have one for the printer and one for a disc file.

OK, so it's not a word processor, but the ability to easily "print" to a file would be handy for repetitive labels. Single character (manual typewriter) mode isn't quite as useful as it could be, though that's not the program's fault. It is a fair criticism however, since one of the main uses suggested is for filling in forms.

Unfortunately, any half-way intelligent printer won't move its head if it's given spaces – it waits to see if you're actually going to print anything.

My DataProducts printer does this, as will most Epsons, and the Fujitsu is even worse. It works out what's going on and refuses to print anything till it gets a line-feed, so there's no difference between single character and line modes.

I suspect this is likely to be true of any printer which is designed to waste as little time as possible on needless head movement, thus making E-Type no better than a word processor for getting the right alignment on forms – you still have to measure the paper.

E-Type is described as fully wysiwyg, and the Amiga has an italic character font, but when italics are in use the text on the screen doesn't show this. An oversight, or just laziness, I wonder?

To conclude – I don't like reading reviews that consist of nothing but criticisms, and I don't like writing them, but unfortunately it's hard to think of much to say in E-Type's favour.

If you can write reasonable Basic, do so. It'll only take you an evening to write your own typewriter emulator if you really feel a need for one. C wouldn't be much harder, especially if you settle for a program that only runs from the CLI.

Alternatively, have a look at the public domain sector – you may well find something like this for the price of a disc. Otherwise, if you have no word processor you'll probably find Ed adequate – and free.

The only case I can see for E-Type

▶

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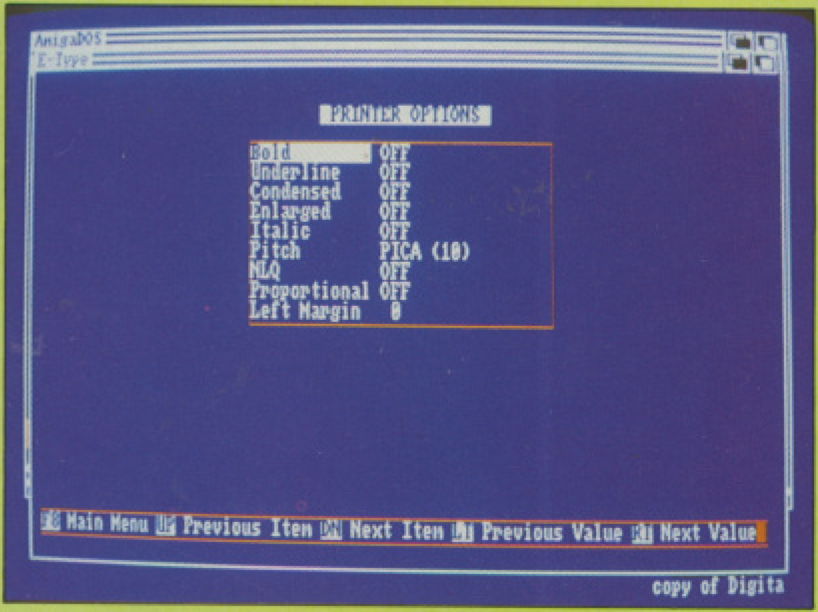
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is where you want to do things that Ed can't, such as bold or underlining, but not often enough to justify the cost of a word processor, or if you have a lot of awkward forms, labels or envelopes to type.

You'll need to do an awful lot of that kind of work to justify the cost of E-Type, and even then there's no easily-used print to file capability for lots of identical labels, and the manual typewriter mode may not work too well if you have a reasonably smart printer. In short – grossly overpriced and not recommended.



The ability to add escape codes is the only advantage E-type has over a simple text editor

REPORT CARD

E-Type
Digita
£39.95

USEFULNESS
Would be better if most printers weren't too smart for the manual typewriter mode to work properly.

EASE OF USE
Very easy to use, less so to set up.

INTUITION
Lack of Intuition features isn't necessarily a bad thing for this kind of application, but a pop-up options window would have been nice.

SPEED
Keeps up with a human typist OK, but very slow when printing from files. No way will it keep up with a reasonably fast dot matrix printer.

VALUE
At £9.95 E-Type might just be handy. At £39.95, it's laughably over-priced.

OVERALL 27%

There must be some redeeming features but finding them is a challenge.

Breaking the code

WHEN you were young, assembly language was that special tone of voice the headmaster used to direct several hundred kids not to throw the first years into the swimming pool again, please. When computers were young, assembly language – or more strictly, machine code – was the only way their inventors had to control them.

The lowest level of human/computing communication, assembler, is the ultimate in power programming where the software writer abandons the safety nets of higher languages such as C or Basic to control the computer directly.

Like driving a very fast car, it's more dangerous and more demanding than its slower counterparts, but ultimately far more rewarding. Unlike fast cars, Amiga assembler costs nothing to try and you always walk away from a crash with no-claims bonus (if not sanity) intact.

Assembly is so-called because of the way it takes a program and assembles it into the machine code that a computer runs. Compilers, which convert a program by linking together pre-written chunks of someone else's code – a program is never a program in assembler speak it's 'code' – and interpreters, which work out what a program means and then run someone else's code each time the program is used, always make machine code that's less than perfect for the job.

What you write in an assembler program is what the computer gets to run. Nothing else. If you get it right, it will outrun anything.

Writing in assembler for any machine takes an intimate knowledge of the computer, and the Amiga is no exception. However, unlike many computers, the Amiga has a well thought-out and standard link to all of the special functions of the machine, provided by Commodore.

This simplifies programming no end, but a good grounding in the design and foibles of the microprocessor in the machine is still needed. And it's the 68000, heart and mind of the Amiga, that the would-be hacker should study first.

The 68000, or 68K, is quite an old processor as such things go. Conceived in the late 70s, it was one of the first to be designed by a team which studied the way in which the first generation microprocessors had been used. As a result, the instruction set – the list of commands that the processor can understand – is both simpler and more powerful than many others.

It's easy and quick to learn, there



You can't beat assembly language for speed. Rupert Goodwins explains how you can talk to the computer in its own terms

are relatively few special gotchas to watch out for – a gotcha is a curious mode of behaviour that causes the programmer to worry for a bit before yelling 'Gotcha!' when the truth becomes apparent – and it's logical.

It might seem strange to hold logicality up as a good thing in a computer – can't the beasts out-Spock Spock? – but other processors have an arbitrary allocation of functions. It might be possible to multiply X by Y and store the result in Z, for example, but not to multiply X by Z and stuff the answer in Y.

On the 68K, almost any operation can be done to almost anything. The processor has a regular instruction set – the magic word to impress people is orthogonal – and learning the instruction and the structure of the processor is enough to know it all.

The bit of the processor with which assembler programmers become most intimate is the register set. Registers are very similar to memory locations in that they store numbers, but unlike memory they are part of the main processor, so can be accessed very fast indeed. There aren't many of them – the 68000 has 19 and that's a lot for a processor – but they are where all the action takes place.

The 19 registers are divided into data, address and system registers. There are eight data registers, called D0 to D7. One of the things about assembler programming is that numbers always start at zero. The first data register is register 0, the first memory location is 0, and so on. Some particularly silly computer books even start at chapter 0.

This is because in digital electronics whenever something is chosen by a set of signals there's always something selected when all the signals are zero. It's convenient for this to be considered the first wotsit, and it would be daft to call it number one. So the first data register in the 68K is D0, and the eighth D7. It comes naturally after a year or two...

The data registers are used, yes, for data. They are 32 bits wide, which means they can hold numbers between 0 and about 4.3 thousand million. That's not strictly accurate; as the numbers are held in binary the processor actually deals with those between 00000000000000000000000000000000 and 11111111111111111111111111111111.

It might be convenient to consider the leftmost 1 as a sign indicator – if it's 0 then the following 31 bits are positive, if it's 1 then they're negative. In this case, the data registers hold



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between –2.1 thousand million and +2.1 thousand million in decimal. This is called signed integer, the former case is unsigned integer. Whatever – it's up to you how you choose to interpret things.

Instructions to do things like add numbers together, check for particular conditions and change values tend to use the data registers.

Seven of the eight address registers, again 32 bit, are mostly used to address memory. This becomes steadily more important as languages get more machine-oriented – in Basic, memory addressing is hidden away completely; in C it becomes important and in assembler there's no getting away from it.

Consider the Basic line:

```
LET planet$="Hello, Mars":PRINT "Bonzo
says, ";planet$.
```

This, behind the user's back, allocates some memory, stuffs the 11 bytes of "Hello, Mars" into it, takes the PRINT command, points it at first to "Bonzo says, " and then the recently-stuffed area of memory and, byte by byte, copies the text on to the screen.

To do the same thing in assembler might involve pointing one address register (A1) at a free area of memory, A2 at "Bonzo says, " and copying the text. The process would be repeated for the "Hello, Mars", the total length of the text worked out and put at the beginning of the text and then an address register (say A0) pointed at the whole caboodle.

A routine – a self-contained chunk of code which performs a function, either provided by Commodore or home-written – would then be called upon to take the area of memory pointed to by A0, get a count out of the first byte and copy that many subsequent bytes to the screen, translating them to characters as it went.

The eighth address register – A7, of course – is normally used for stack management. The stack is an area of memory which is used for special purposes by the 68K. If, for example, the computer is interrupted by a hardware signal because it has to dash off and run some code to receive a byte from the serial port which just won't wait, it shoves the address in memory of the program it was running "on the stack" to retrieve later. The same thing happens if a program calls (like GOSUB in Basic) another part of the program; the processor has to know where to RETURN to.

Putting stuff on the stack involves getting the information, storing in the memory pointed to by A7, changing the value of A7 to point to the next free area in memory and repeating the process as required.

This happens automatically, and the machine code programmer doesn't have to worry about the mechanics. You do have to make sure that A7 is pointing to an area of memory that has enough free space to store the addresses of however many routines are likely to be interrupted or make calls.

It's common to put data on the stack in order to pass it to a routine, because the processor provides special instructions to make this easy. Most of the time, for small assembler programs AmigaDos supplies enough stack to be safe; it's only when large programs or peculiar practices are indulged in that the stack need be considered.

There are, although this is not apparent to the programmer, two A7s, changing when the 68K changes between supervisor and user mode. Some instructions, those that allocate and control memory for example, can only be carried out when the processor is in supervisor mode.

The user mode is intended for ordinary programs, which have restricted power over the system and shouldn't be able to disrupt others that might be sharing memory with them. It's convenient to have two separate stacks for the two modes, and the 68K provides this.

The final two registers are status and program counter. Status provides information about the state of the processor, and also remembers part of the result of previous maths or logical operations. If a subtraction results in a negative number, for example, then a bit of the status register gets changed so that a later instruction can find out this fact. The program counter holds the address in memory from which to get the next instruction, essential to the processor but forgettable to the average assembler animal.

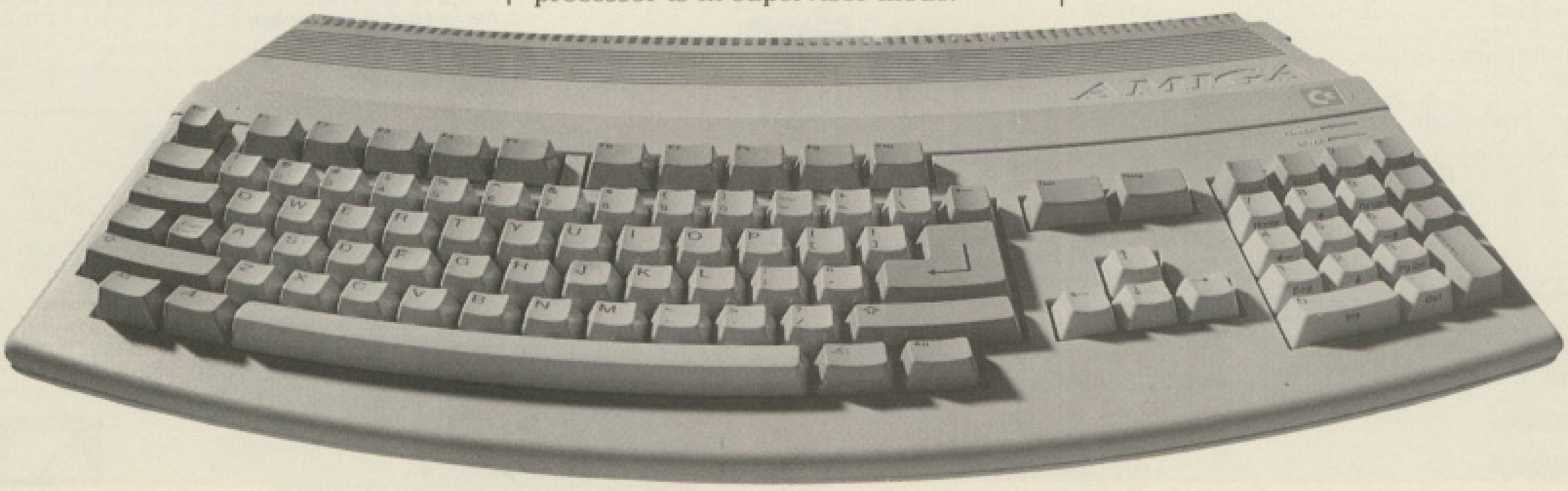
The general idea behind assembly programming is to get data into the data registers by locating it with the address registers, change it and put it back out again.

What that data is, what modifications are perpetrated and where it finally comes to rest, is no business of the language. It's all up to you.

Before the concrete stuff comes next month, the mechanics of assembly programming need to be shoved under the microscope. Various different assemblers can be used; some are public domain and are ideal for learning/experimenting with the language, and some cost a few tens or hundreds of pounds. They all perform the same function.

The PD ones – A68k and Asm68k are the most common – have the fewest frills, but produce just the same code as those that cost real money. The expensive ones tend to earn their keep by providing what's called an integrated environment; text

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editor, debugger and assembler working together to make program development easier.

The usual way to write an assembly program is, from the CLI, to start with a normal text file – if you don't have a commercial editor that can produce plain Ascii text, use Ed. That's provided with every Amiga and works well for small-medium sized files.

Say the file is called GIZMO.ASM. This is then sent to the assembler by a line similar to A68K GIZMO.ASM. The assembler chews over the work of magnificence newly writ, and spits out either an object file or a set of terse error messages.

An object file is half-way to the finished code – error messages are somewhat further removed. It normally needs to be linked with other object files before it can be run; these files contain routines which were written earlier – standard routines you rely on, or other people's code – and let you write and test a large program in small chunks.

The link process also sorts out exactly what goes where in the final program – for example, each of your small chunks of code might contain a separate area for data storage. The linker will separate out all these areas and lump them together, dealing with the code likewise, making two big areas which can be saved separately instead of one even bigger mishmash of little 'uns. Keeping track of what goes where and does what is one of the bigger headaches of programming in assembler.

So, finally, the executable program falls out. Type its name at the CLI prompt and... the machine crashes. Ka-boom. This always happens first time, and almost always on the second. It's time to go back to the source code (which has, of course, been saved before running the new program. Hasn't it?) and check what's gone wrong.

There are some essential books to be bought, borrowed or otherwise obtained. The first, which every Amiga should have come with but every Amiga owner has to go out and buy, borrow and so on, is the AmigaDos User's Manual. This covers the use of Ed, how to set up sensible working environments, and lots more technical stuff that's indispensable.

Next on the list is the official Motorola 68000 User's Manual. Unlike many manufacturer's books, this is well laid out, clear and simple to use. It is written for an expert audience – "The powerful vectored priority interrupt structure of the microprocessor allows straight-forward generation of reentrant modular input-output routines", and that's page 9 – but as a work of reference it can't be beaten.

Recommended, but not must buys, are the AmigaDos Rom Kernel, Developer's and Intuition manuals. All of the above except for the Motorola book should be gettable by your local dealer or Amiga Centre, or a technical bookshop. Otherwise, Commodore UK will help (are you listening, C-UK?). Motorola's sales office is Television House, 10-12 Mount Street, Manchester, M12 5WS.

Something to shout about

Make the neighbours' windows rattle and hum. Rupert Goodwins decides that things sound better in stereo

EEE, but there's nowt so queer as folk. That old northern saying is slightly wrong – to be accurate, there's nowt so queer as West Coast American folk. Especially those who design a computer with the sound gizmos to synthesise, in hi-fi digital stereo, Jean-Michel Jarre sneezing well enough to make the man reach for the Kleenex.

They get the software spot on, the electronic bits fair resonating with rightness, and then forget to put in an amplifier, so nobody can actually hear the stuff. Not even a headphone socket. Perhaps they were all telepathic, and just didn't notice...

To be fair, the Amiga is designed to be used with a monitor which can reasonably be expected to have some sort of speaker system. But most aren't stereo, and while wiring the computer up to the hi-fi is guaranteed to enthral your eardrums it's both messy and inconvenient.

Another problem, but one which isn't really Commodore's fault, is the way in which AmigaDos steals a little more memory for each disc drive connected. Just about every operating system ever written does this; memory is needed to keep information about the disc drive as well as to transfer programs and data in and out of the floppy. This doesn't matter in normal use but when a utility or game needs every last microbyte of ram, having a second drive attached can seriously damage your software capability.

However, there's a better way to disconnect a disc than by yanking the cables. All it takes is one switch in one of the lines that run from micro to drive, and the unpalatable peripheral is electronically invisible.

When the Amiga scans around for extra bits, the line that asks "Are you there?" is cut. No reply from the disc ▶



◀

– no extra memory munched. And it just so happens that the sound and floppy sockets are serendipitously congruent *(he means it's lucky that they're next to each other – Ed.)*

Astech, a brand-new company, noted all the above and has produced a small box which combines a disc isolation switch and a stereo audio amplifier. Tastefully finished in black to match the Amiga (with the lights out), it simply plugs into all three sockets. The disc connector is taken straight through, so any normal Amiga floppy will plug in. On the top of the box are two 3.5mm jack sockets for loudspeakers, a switch and two knobs.

The switch is marked Drive Disenable and Enable. Disenable is a new one on me; why they didn't call the other position Endisable I don't know. But it simply makes or breaks the appropriate line, and thus enables or disables any and all external floppies. It is possible, with extra electronics, to just disable DF1: or DF2:, but this isn't much more useful and costs extra.

THE two knobs are volume controls for the two audio channels. This is as effective but cheaper than having one volume and one balance control. Inside the box sits one circuit board and a few wires – closer investigation shows one LM377 stereo amplifier chip together with precious little else.

This chip is a very rugged, two watts per channel device and should be impossible to blow up by any means short of plumbing 240V mains directly into the output sockets. This will also destroy the Amiga and kill you, so stick with speakers. The unit takes its power directly from the computer, so there's no extra wiring.

It works, almost flawlessly – a different arrangement of the connectors on the back of an Amiga 2000 mean that this is an A500 only product but then the rich kids will probably run the sound through their Quad set-up anyway.

One oddity is that the box is plastic and all of the leads are unshielded, so in use there's a small degree of pickup from the floppy wires and the Amiga's internals which results in quiet hums, buzzes and churr-churr-churrs as the machine thinks. And on the (obviously pre-production) model I had there was no headphone socket.

However, Astech has taken this to heart, and promises to put this into all production units. I've taken the liberty of plumbing one into mine, and as a result the box will be permanently plugged in. It's not a flashy product, but it fills a need and isn't too expensive. Recommended.

Sound Amplifier, Astech 0474 325814
£28

K for katastrophe

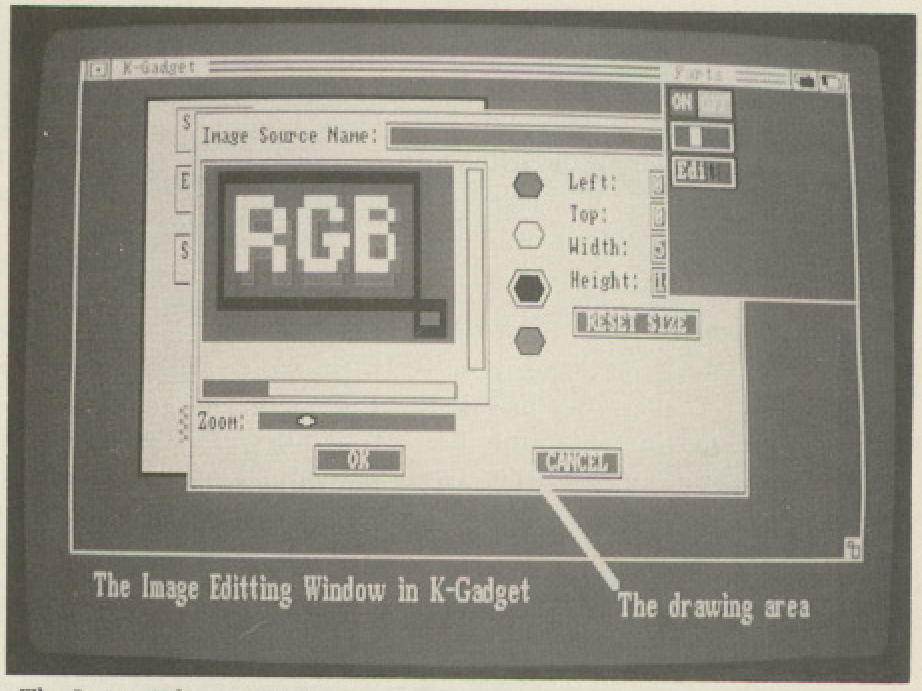
DJ Walker-Morgan finds you need to be an expert in C and intuition just to use Kuma's K-Gadget

WHEN programming tools increase the effort expended it is time to write your own. K-Gadget from Kuma is a programmers' utility for the Amiga. It's purpose is to simplify the creation of gadgets and requesters by automating the process of generating C source code.

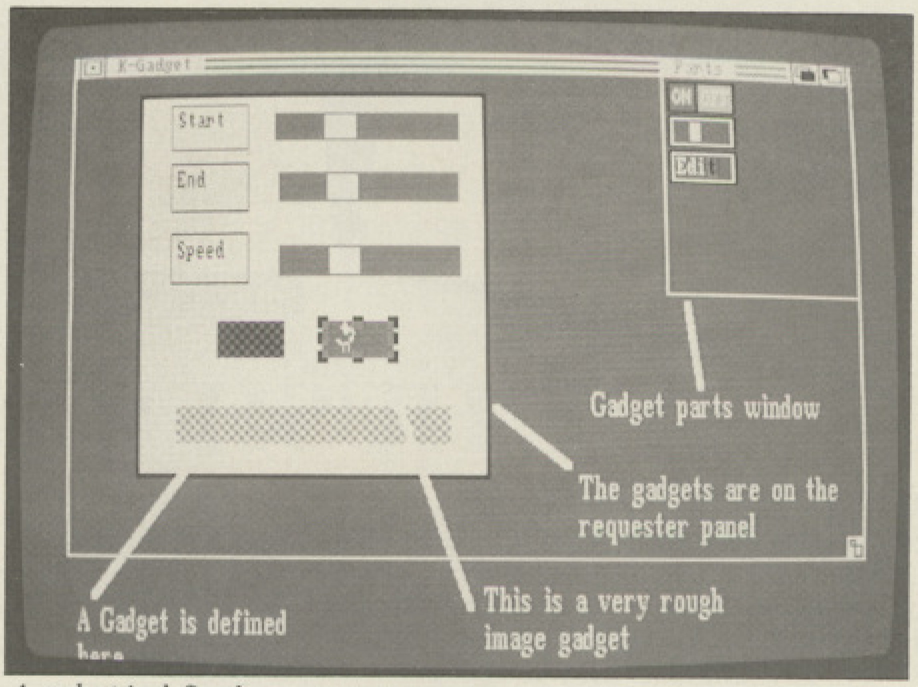
The idea is that you draw up your gadgets on screen, set their operation, and K-Gadget goes away and writes the code for you.

K-Gadget has two basic screens, one on which you construct your gadgets and one from which you can pull the different types of gadget. To construct a Boolean gadget – that's a yes/no on/off type box – you pull the object marked on/off from the parts window and move it on the main window.

The utility then puts a representation of the object on the screen, and using pull down menus, you can define how the gadget will behave and look. This is fine in theory – such software tools are as important to commercial programmers as coffee in plastic cups. Unfortunately in K-Gadget, the implementation leaves much to be desired.



The Image Editing window



A gadget is defined

YOU never see the gadgets you are designing under Intuition, only K-Gadget's representation of them, which is not really the true picture. Most code generators have a test mode which lets you do this. Here there is no sign of such an option.

When setting up a gadget you have to fill in various screens, but there is no quick way to move between them. For a program that is supposed to make life easy for the user and programmer its requesters rely too heavily on keyboard entry.

The keyboard setup is dismal. When setting up borders, you have to enter a list of border coordinates, which involves entering X and Y coordinates into a list.

Instead of allowing you to move through the list with cursor keys and pressing Return to move to the next field, K-Gadget demands that you click on every entry box whenever you want to enter a value. For a simple box border, this is mildly irritating. For anything more complex it is a major pain.

It is in designing the gadget's image that K-Gadget reduces to worthless any positive advantages it might have had. The image editor is slow, very slow, and for no apparent reason.

When you go into the window to start drawing and press the left mouse ▶

button, you expect, as with most applications, there to be a trail of pixels following the mouse pointer. There isn't. You have to point and click *every* pixel for your gadget. You cannot load in IFF brushes, so this is also the only way to generate images, slowly.

I couldn't find any way to copy a gadget either. You have to define each one. A colour palette requester would be an nightmarish exercise in tedium. But you couldn't really do a palette requester, because K-Gadget only works in four colours on the 640x200 Workbench screen. Anything else, and you'll have to sit down and hack the C source.

COMING on to the C source, a particular irritation is the fact that no comments are added into the code. It makes altering the generated code that little bit harder.

The manual assumes you are literate with Intuition, so if you are new to programming the Amiga be warned that no allowance for you is made. It's a pity really the people that a gadget generator could most help are cut off from using it by the manual, but there it is.

Just as a blind test, I called a programmer friend of mine who was working on a communications program. I said I had a gadget generator and would he like to borrow it and put together some gadgets. He did. He came back three days later, very frustrated, after hitting nearly all the same problems that I'd encountered. His only comment was "Buy 30 pounds worth of graph paper it is more user friendly".

K-Gadget is a good idea gone sadly wrong. It seems to be written as an exercise in menus and requesters, rather than with the aim of being an effective tool for a programmer. You spend more time filling in the blanks for K-Gadget rather than creating good gadgetry. But then I should have been suspicious when the most complex gadget image in the program was a simple hexagon....

REPORT CARD

K-Gadget
Kuma
£29.95

USEFULNESS.........
Limited screen modes and the inability to import IFF restrict uses.

EASE OF USE.........
Shows tremendous lack of thought on behalf of the person who designed this.

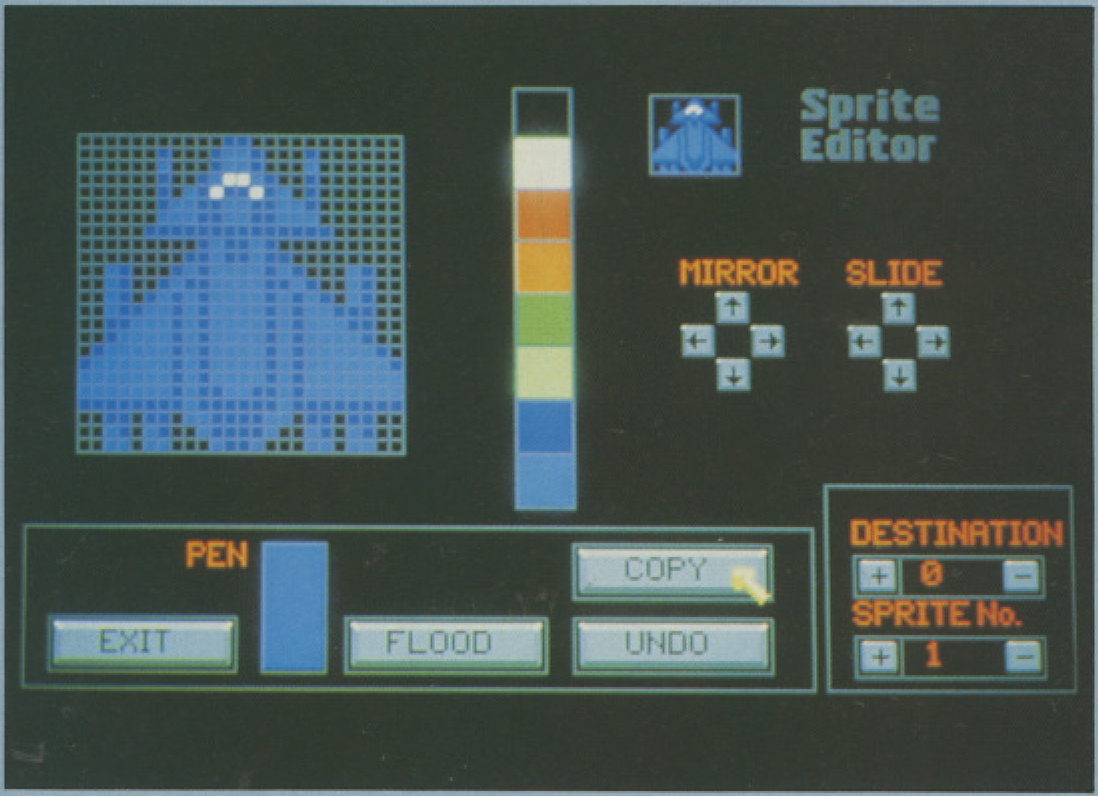
INTUITION.............
While the program obeys the rules it shows a lack of regard for the ethos behind programming the Amiga.

SPEED.....................
If the draw program was any slower the results would be old masters by the time you finished.

VALUE ....
You are probably better off with £30's worth of graph paper and a pencil.

OVERALL ***32%***

Most programmers would rather write their own utility than use this. It would be faster in the long run.



Sprite design will make or break the game

The Generation Game

Simon Rockman looks at Shoot-'Em-Up Construction Kit, the game design program which lets you decide which aliens you zap. And not an assembler in sight

Do you find scrolling shoot-'em ups are getting samey? Do you suspect that you could do better but know that to produce a game would mean at least a year learning machine code and then another six months to write the game? Do you want a quick way to unleash your creative talents? You do? Then you want to rush out and buy Shoot-'Em-Up Construction Kit (Seuck to its friends), a program which lets you design your own shoot-'em-up games.

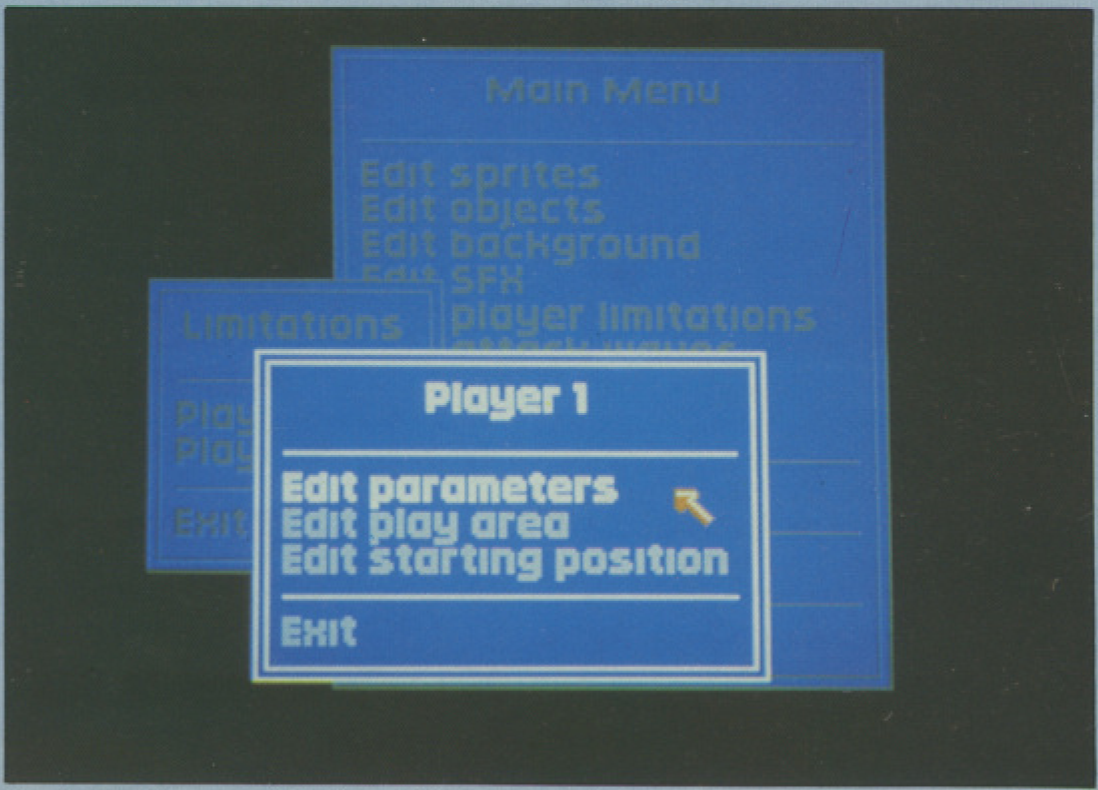
For the non-programmer it is not until you sit down to design a game that you realise how much goes into the simplest program. You have to design sprites for your player, enemies, bullets, missiles and backgrounds.

If you want to animate a sprite – so that your ship can roll for instance – you need to draw every frame. You need to sort out the movement patterns for a swooping flock of aliens, and if you want five minutes' worth of scrolling background you cannot just draw lots of screens and join them together unless you have megabytes of ram to spare. Screens have to built from standard blocks to save memory. Then there is collision detection to worry about, not to mention the scoring.

So writing a game means compiling a number of simple routines. Most programmers write special editors to automate the process. Being tools written by programmers for programmers, they are usually a bit rough. Outlaw – the Palace label used for titles written by programmers who work freelance – has produced a neat suite of programs which allows anyone to design a simple, scrolly, shooty game.

A sprite editor is used to design your ship, and if you are creating a two player game, your allies' ship, in a 24 by 24 pixel grid, using seven colours and one transparent colour so that the landscape can scroll by. The same limitations are imposed on enemy sprites all of which can have up to 18 frames of animation.

An animated sprite is called an object, supposedly to make things ►



Seuck uses its own windowing system



You can have up to 18 frames of animation

◄

simpler. You can have a total of 100 sprites stored with up to 60 of them on the screen at any one time.

You can tweak the performance of your ship by adjusting the number of bullets in the air at any one time, the bullet direction, speed and rate of fire. Traditionalists will probably want to start with three lives, but can choose a different number or use the option to win a bonus ship at 10,000 points.

The blocks for the background use eight colours – which can be different to the pallette chosen for the ships – on a 32 x 32 grid. You can have up to 140 blocks, which means there is plenty of scope for interesting backgrounds.

Up to 22 levels can be designed and they don't have to smooth scroll, you can flick scroll or have a static screen. You can even switch the type of scroll in mid-flight so as to tackle a particularly nasty alien at the end of a level, like Xenon.

The game can be tested with infinite lives and then the finished result saved to a disc to form a stand-alone game.

Starting from scratch is difficult, it is far easier to modify an existing game, so the programmers have put together three sample ones. Since they are the same men who wrote Amiga Wizball for Ocean it is no surprise that the graphics are great.

But you will soon progress to writing your own games. Pete Stone from Palace says the most clever idea he saw for the Commodore 64 version was a game where a boy had to win the affection of girlfriends by throwing hearts at them. There is certainly plenty of scope.

Seuck uses its own windowing routines and will not multi-task – a necessary restraint to make the game run fast enough to be playable. You can load IFF sounds and an IFF title screen, but you cannot use brushes saved from Amiga art programs, and I see this as a major shortcoming. It would be great to be able to use something like a video digitiser to grab screens off a video recorder and pipe them into the game. There might even be a market for an IFF-to-Seuck conversion program.

The Amiga is, in the words of its designers, "a killer games machine", it is also the computer which has proved to be an unprecedented creative tool for the masses. Shoot-'Em-Up Construction Kit is the program which unites those abilities.

REPORT CARD

Shoot-'Em-Up Construction Kit
Outlaw 01-278 0751
£24.99

USEFULNESS ......
It is great fun to rattle off a game in a couple of days, so it could be considered useful.

EASE OF USE.......
Simple, menu-driven with good editors but putting a game together takes some time.

INTUITION..........
Kicking out AmigaDos is not so bad, but the inability to load IFF files is a serious oversight.

SPEED...................
The games produced can get a bit sluggish with a lot of sprites, but that is only to be expected.

VALUE ....
As many games as you want for £25. But it is producing them that is the fun part of the whole exercise

OVERALL 67%

A true Amiga addict's choice. Gameplaying meets creativity, and the user comes out the winner.

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Through the s

New series

Phil South begins a brand new series on AmigaBasic programming by looking at the fundamental subject of WINDOWs

THE aim of this series is to give you a tutorial journey through the features which put the Amiga into AmigaBasic. Little is understood or documented about the specifically Amigoid features of the language, and in forthcoming months I hope to clarify some of these important features with examples of each which you can adapt to fit your own programs.

It's assumed you have grasped the use of AmigaBasic from typing in listings and trying out a few of your own programs. We're not presuming to teach you Basic here, but to take your working knowledge and mould you into a power user.

The production and use of windows in AmigaBasic programs is an important skill which you must master before you can proceed. Don't get the idea that this is complicated because it isn't. But you should know

square window

what all the different variables mean before you fling yourself into a career programming in Basic.

As you may know, when you write a program in AmigaBasic, the window that the program appears in defaults to a window that you can't close, resize or flip from front to back. The only way to escape the program is to select the STOP option from the menu bar. The reason for this immobile and unhelpful window is that it has not been set up and so has a "type" of zero. No values have been set.

The syntax for WINDOW commands is like so:

```
WINDOW <window id>, <"title">,
<rectangle>, <type>, <screen id>
```

The command can just specify WINDOW and an id number, which makes a default window with no gadgets, or if the window number exists, it brings it to the front and makes it the current output window.

Window id is a number from 1 to n that identifies a new or currently defined window.

The title part of the command is in quotes, and is the text which is to appear in the top left of the window.

Rectangle is the size of the window in two sets of parentheses separated by a - sign. the format is (x1,y1) - (x2,y2) like so:

```
(10,10) - (270,70)
```

These are equivalent to the coordinates of the top left and bottom right corners of the window. The default values are for a full screen.

Type is the most complex command option, as this specifies with a single number – between 0 and 31 – the style of the window you're creating. The table (top right) details the basic styles you have to choose from.

To get combinations of these effects, you simply add the numbers together to get the new type number. So if you wanted all of them it would be 1+2+4+8+16=31.

0	No gadgets.
1	With sizing gadget in top left.
2	Allows you to move window with title bar.
4	Front and back gadgets in top right corner.
8	Close gadget in top left.
16	Contents of window refresh if covered.

Screen id refers to any screen previously created with the SCREEN command, this can be between 1 and 4, and the default figure of -1 refers to the Workbench screen.

Try this program segment:

```
windies: WINDOW 1,"Huey",(10,10)(270,70),31
         WINDOW 2,"Dewey",(310,10)-(580,70),31
         WINDOW 3,"Louis",(10,95)-(270,170),31
         WINDOW OUTPUT 1

LIST
```

The statement WINDOW OUTPUT changes the current output window without forcing it to the front. This means you can send a picture or text to a window behind the front one before you bring it forward. If you want to bring a window forward and select it as the current window, just use the WINDOW <id> command.

A useful habit to get into, for the ▶



sake of style and neatness, is to close all the windows before exiting. The thing about this is that you can specify an unclosable task, and this can be untidy if someone hides a window and forgets to close it, then wonders why his machine locks up when he quits. To close windows simply employ the WINDOW CLOSE <id> command. Get into the habit of typing this into your programs as a final routine before you put the middles in, adding WINDOW CLOSE commands as you add a new window to your program.

```
Shutit: WINDOW CLOSE 1
        WINDOW CLOSE 2
        WINDOW CLOSE 3
```

Before we leave the subject of windows let's just take a peek at a more complex WINDOW-related command, and that's WINDOW (x). This returns a specific value depending on what you slip in between the parentheses. The numbers between 0 and 8 return particular values related to the currently selected window. (NB: If you're a beginner programmer I suggest you browse this bit and come back to it.)

Number	Returns
0	Window id of selected front output window
1	Window id of current output window
2	Width of current output window
3	Height of current output window
4	X coordinate of where next char will be in window
5	Y coordinate of where next char will be in window
6	Maximum legal colour
7	Pointer to INTUITION WINDOW record
8	Pointer to RASTPORT record

The deeper ramifications behind 7 and 8 are best looked up in the standard text, an essential programmers' tome called Amiga Intuition Reference Manual (Addison Wesley), available from all good Amy stores and only suitable for hardened hackers.

To use WINDOW (x) just substitute the x for the number in the above table which returns the information you need. You can seed these commands through your program to make sure your windows are on course. This can be an invaluable programmers' tool, as well a powerful command in your Basic arsenal.

● *So that's the window nut cracked. Next month we'll be looking at DEF FN or defined functions and their uses.*

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Amiga Arcade

LOMBARD RAC RALLY

THE dust had hardly settled over Harrogate when Mandarin released a driving simulation that used the Lombard RAC Rally as its inspiration.

Having clocked up average speeds of over 120mph on that other well known driving program Test Drive, I was eager to put my talents to the test on this new contender for pole position of the software scene.

Like most people reading this magazine, my chances of owning a rally-going Cosworth Sierra depend very much on the number of score draws that I manage to select on a Saturday afternoon. So I was quite excited about the prospect of thrashing the computerised version around a digital rally circuit on behalf of *Amiga Computing.*

The game controls are identical to those of Test Drive – move the joystick forward to accelerate, back to brake. Pressing the fire button while performing either of these actions causes the driver to shift up or down through the four speed gearbox.

As you would expect, the engine note changes in relation to the revs you are doing in each particular gear. Unfortunately Mandarin didn't employ the superb throaty roar that features so prominently in the title music. But then the programmer also forgot a fifth gear.

Before competing in the rally you must first prove your competence behind the wheel. This is achieved by racing round all five legs of the proposed route and qualifying as one of the three fastest drivers in at least one leg.

Every leg of the rally consists of three stages, each posing its own particular problems. A stage may be open road, a forest section, or a twisting mountain track – on top of which you must also race in thick fog or at night.

Most unusually for a racing game, you are not shown sat in the driving seat or behind the car – your viewpoint is from just behind the driver and navigator, giving the same view as you get on the TV. As there is no rear seat in a racing Cossy I can only assume that you are perched on the toolbox.

With the starter's flag draped across your windscreen a digitised voice shouts a countdown – "Three, two, one, GO!". Slamming the throttle to the floor, you scream away from the start. With the power still on you dab the fire button, the driver responds instantly, smoothly snicking the beast into second gear. Similarly, all left and right movements of the joystick are echoed by the man at the wheel.

The sense of movement is achieved graphically using the age old technique of scrolling a series of horizontal lines down the road. Additional realism is obtained with the extensive use of hills, dips, and bends in the circuit. The whole sheebang is made more effective by jiggling the screen.

It is quite unnerving to race up to the brow of a hill and realise that while your bonnet is pointing skywards you can no longer see which direction the road before you is following. On several occasions I found myself straining my neck to try and keep sight of the road as it fell out of sight.



Your viewpoint is from just behind the driver and navigator

These occasions can be made less frightening by taking a quick look at the navigator's clipboard, which displays a route map upon which your current position is highlighted. I must say that the map did not always appear to show what was happening in front of me; life would have been easier if the navigator wasn't as shy and would shout directions as we tore round the circuit.

Just like the real world, there is the merest possibility that you may hit an immovable object at some time during your rallying exploits. When this occurs there is a loud "SMASH" and bits of number plate, wing, and broken glass fly up over the bonnet. Not only is this highly dramatic, it is also very costly.

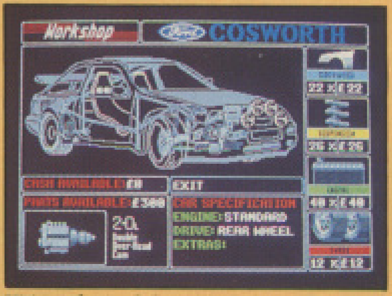
After each stage you can visit the workshops to assess and repair the damage to your car. Or if you are very rich, you can upgrade various features – a beefier engine perhaps, more powerful headlights, or even four wheel drive. All on offer at a price.

Money can be won by finishing in the first three on any leg, or by answering questions correctly during the optional TV interview that is available after each leg.

The questions are all in the rallying vein, and pretty difficult if you're not a rally buff. Correct answers are rewarded with cash; wrong ones result in your account being debited.

It is essential that you try to keep your car in a good state of repair – if the damage becomes too severe you will be retired from the competition.

Before today I thought that Test Drive was the ultimate driving game, and Buggy Boy the most fun you could have behind the wheel of an Amiga – but not any more! The Lombard RAC Rally combines the thrill of the two.



Visiting the workshops

Nothing can compare with the thrill of throwing the Cosworth around a forest stage in the middle of the night – this game is for real.

Jon Revis



The Ford Sierra Cosworth in racing trim

Lombard RAC Rally
£24.95
Mandarin Software

Sound
Graphics
Gameplay
Value

Overall – 87%

FALCON

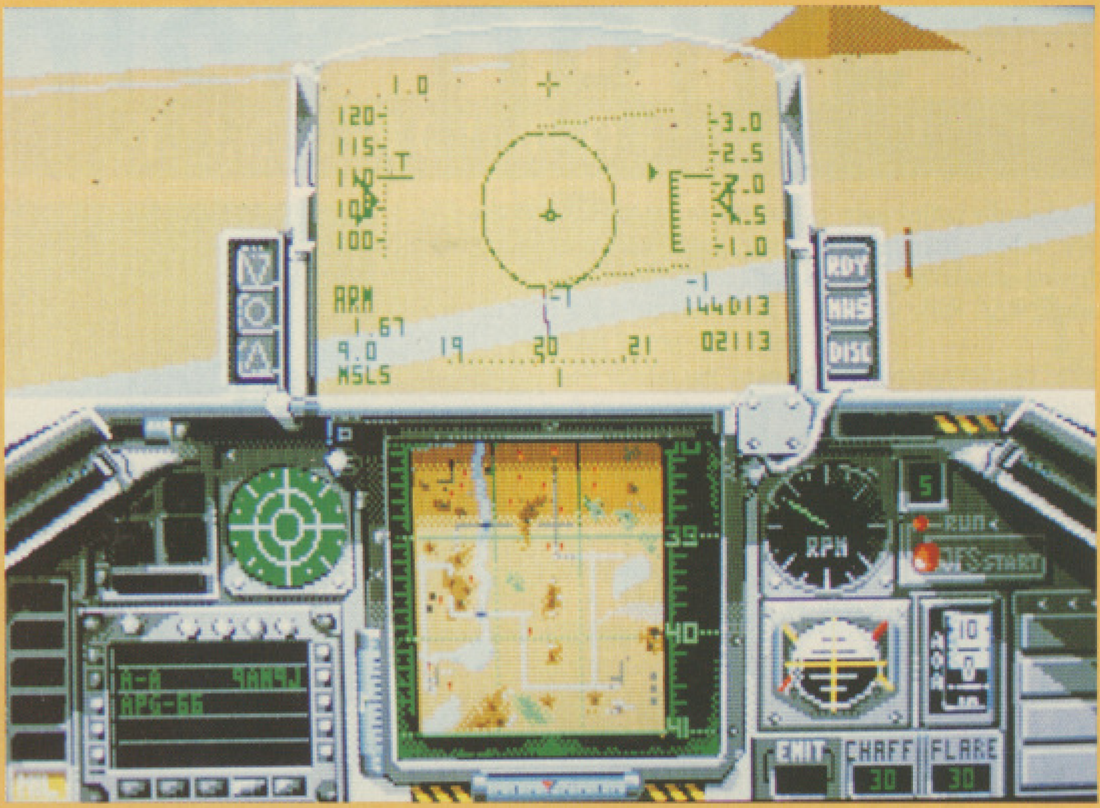
IT may sound like something invented by an over-imaginative public relations executive, but Spectrum Holobyte's IBM PC F-16 simulator was so accurate the US Air Force adopted it as a pre-flight trainer for budding pilots.

Now the same program is available for the Amiga, with the British development team producing a version that will certainly give Interceptor a run for its money.

Falcon starts with the rookie pilot signing on the duty roster. This contains five levels of difficulty: First lieutenant, captain, major, lieutenant colonel and full colonel. The higher the chosen rank the more accurate the simulation – and consequently flight becomes more difficult.

Once you have progressed past the initial level, you must visit the flight sergeant before take-off. Pilots on the basic level begin with everything set at maximum, but those who've earned promotion need to kit out their craft before a flight. The sergeant acts as more than just a storeman, he's ready with good advice that even experienced pilots will ignore at their peril.

The next stage is to enter the cockpit and familiarise yourself with the controls. The head up display (HUD) is complemented by a three screens of dials and controls – represented as a left view, a right view and straight ahead. The majority of the necessary flight controls are constantly in view, while less often used indicators such as damage control and fuel levels are situated on either side.



Because there's so much to be considered during flight, most of the weapons accessing and target acquisition is set automatically by the ship's on-board computer. Bombing is aided by a computer guidance system that goes as far as telling you when to drop the bomb, while air to ground cannon fire is directed by a computer-generated line known as a snake.

Developing flight skills is one thing but entering into combat is a different ball game. For what must be a first in home computer simulations, the enemy is depicted as a fully detailed and accurate craft in its own right. In fact, the enemy is so realistic that I almost ducked for cover when the first MiG shot past my cockpit. Excellent speech greets each kill – but don't expect to hear this for quite a while.

MiGs aren't the only threat hidden in the Falcon landscape. Surface to air missiles (SAMs) pose a constant threat. Fly too low over one and you're almost certainly a gonner – despite your HUD's instant launch warning.

Pilot error is a common cause of mission failure, and Falcon represents this extremely accurately. Attempt to pull off an impossible manoeuvre and you may find the screen turning red as your on-screen counterpart passes out.

Once again practice makes perfect and the best way to know if a manoeuvre is feasible or not is to test it out with the air combat manoeuvres (ACM) section. In a similar fashion to Interceptor, a flight instructor leads the way in another aircraft.

What makes this different is the series of red boxes generated on screen to form a tunnel for the budding pilot to fly through. It's impossible to overestimate the help that this feature is to competent flying.

The last obstacle to a successful mission is the landing sequence – and even this is computer-aided to a degree. An instrument landing system (ILS) is available to keep you on the straight and narrow, but it's still up to you to keep the nose up and the speed down.

When a mission has been completed, the pilot's progress is represented by a series of "snapshots" showing exactly what would have happened in a real life situation. Perform well enough and you may end up with your name and rank displayed in Sierra Hotel, Falcon's equivalent of a high score table. But once again, don't expect to see that for quite some time.

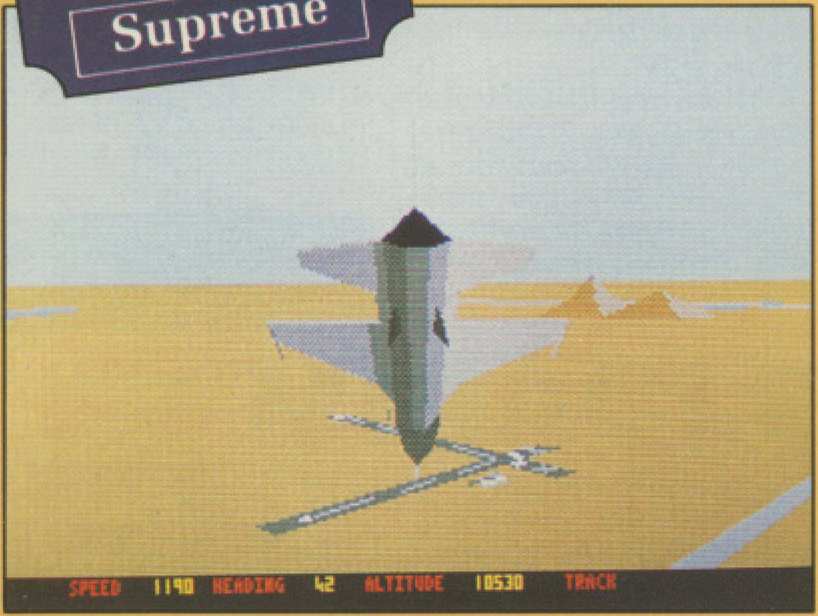
Simulation fans who were impressed by Interceptor are going to love this program. It's actually a good deal more difficult to get to grips with, but the extra effort is well worth the trouble. It's as if the programmers have learned from Interceptor and taken the whole thing about 10 steps further.

The basic 512k simulation is an experienced not to be missed, but those in possession of a 1Mb machine can sample the additional delights of the black box feature. Available at any time, this shows the mission's flight path in three grids, plotting the course of both the pilot and any enemy in the vicinity.

Those who thought that Interceptor was the ultimate in Amiga flight simulation are in for quite a shock – and a lot of Amiga owners had better be prepared to spend a great deal of the next few months with their head in the clouds.

Ciaran Brennan

AMIGA COMPUTING Supreme



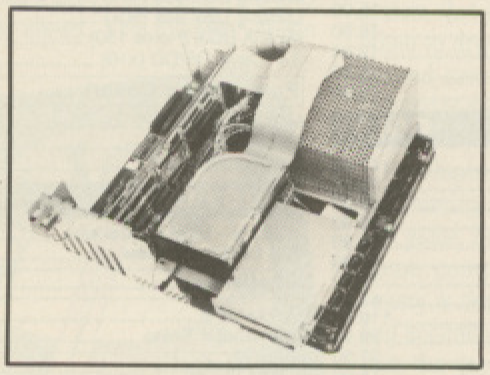
Falcon
£29.99
Spectrum Holobyte Mirrorsoft

Sound
Graphics
Gameplay
Value

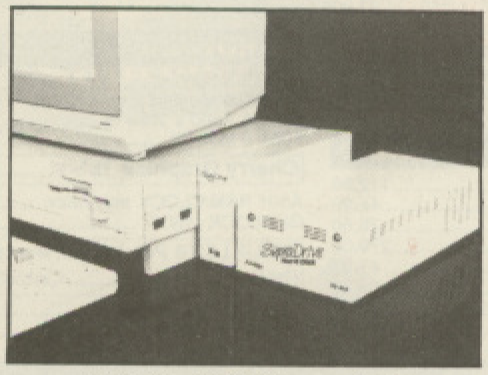
Overall – 92%



AMIGA 500 SupraDrive



AMIGA 2000 SupraDrive



AMIGA 1000 SupraDrive

FREEDOM – REBELS IN THE DARKNESS

IT is the 18th century, the price of sugar is high and the value of human life low. Subjected to constant thrashings, the negro workforce grows increasingly restless. The time is right for rebellion. Are you the one to lead it?

Freedom is a game of strategy that is beautifully complemented by a series of well-programmed combat sequences. The usual title tune is replaced by some excellent Tarzan-like jungle drums – not only do they sound good, they create a superb atmosphere.

Freedom can be played at any of three levels – from defiant, through rebellious to fanatical. Your initial values for constitution, charisma, and dexterity are fixed unless you choose fanatical as the game level, in which case you can redistribute your total points allocation between the three categories.

Decision number two is the selection of your own character – there are two male and two female slaves to choose from. Each has his or her own strengths and weaknesses, all detailed in the flimsy but fact packed manual.

Preliminaries completed, it is time to start your bid for freedom. A diagrammatic view of the plantation forms the main playing area for the game – colourful, detailed and animated.

A menu across the top of the screen displays the current game options. The two most frequently used are path finding and movement. Path finding allows you to place a cursor upon any of the plantation buildings and find out who is inside – a most useful feature when you want to know which places to visit and which to avoid.

Movement gives you control to move your character around the plantation – fraught with danger due to the plantation's large population of dogs. Encounters with dogs normally occur in three stages. Initially you are surprised by the animals, but they don't bark. Walk into the same pack of dogs for a second time and they will bark, on the third occasion you will be confronted by a character from a nearby hut.

Combat takes place against a stunning lakeside view – bullfrogs croak and splash while a huge lizard lazily flicks its tongue. Standard karate-type moves are executed to the accompaniment of sampled sound effects. A successful confrontation is followed by the choice of executing the victim or taking him prisoner.

Before you stand a chance of overthrowing the masters and destroying the plantation you must first mobilise your forces. This you do by creeping from hut to hut persuading your fellow slaves to follow you. Your success in the persuasion business is very much dependent upon your charisma level.

To succeed you must kill all the guard dogs and burn most of the fields and buildings. Alternatively you can try your hand at killing the master, although I wouldn't recommend it.

Freedom is an engrossing game and will keep even the most active of minds occupied through the long winter nights.

Nev Astly

Freedom – Rebels in the Darkness
£19.95
Coktel Vision/Active

Sound
Graphics
Gameplay
Value

Overall – 80%



Beware of the dog – a gruesome end



The map of the plantation



Be sure of support before confrontation

PAC-MANIA

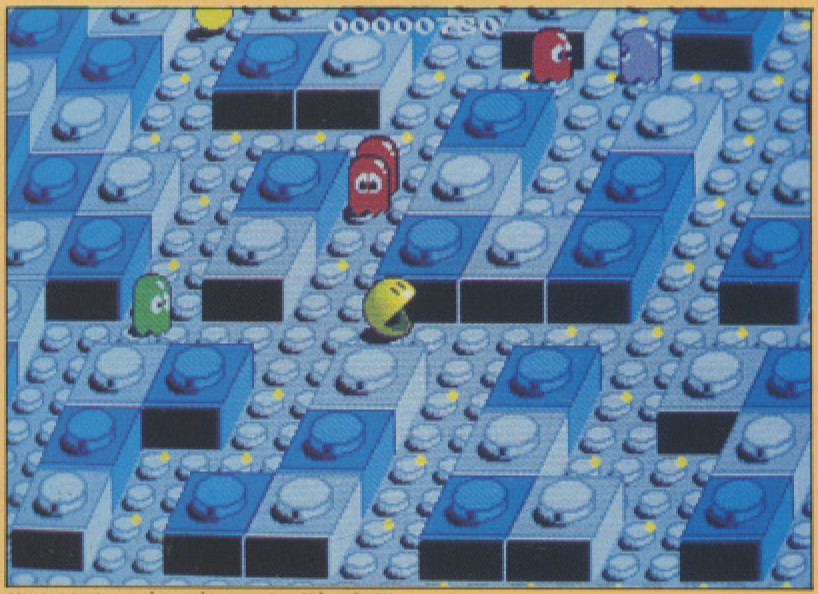
NOSTALGIA is big business nowadays – we have '50s and '60s music back in the charts and Pacman back on the computer screen. The little yellow blob with a penchant for pills is back once more and he's still being hounded by Inky, Pinky, Blinky, Clyde, Sue and Funky.

Can Pacman cut it with the big boys in 1989? Or is the game an insult to the circuitry of your beloved Amiga? The answers to these two questions are yes and no respectively.

Pac-mania is an arcade-quality program. Stunning use of colour, shading, and three dimensional perspective make it an Amiga showpiece.

The most attractive feature of the graphics is the way that they fill the screen completely – there is no border. By combining this with superb four directional scrolling, the programmers have created a perfect illusion – the monitor seems to disappear and you are left looking at the game itself.

Sound is exemplary – a different tune accompanies each level, with every one taking full advantage of the Amiga's stereo capabilities. Even after several hours play I didn't feel the desire to switch the music off – so it must be good!



Outwitting the ghosts in Block Town

Our hero must out-run or outwit his ghostly following as he races around four different types of maze. The first is described as Block Town. I would have called it Lego Land since the floor and walls are constructed from Lego type bricks.

Number two is set in Pacman Park with tubular rails forming the barriers. The third level is based in Sandbox Land – here the dusty paths are separated by the regular shapes of sand castles. Finally we have the elevated wooden walkways of the Jungly Steps.

Apart from the regular Dotty pills the maze also contains several larger pills of various colours. There are always four yellow ones on a screen – these are Pacman's power pills which make him mean, macho, and menacing and also give him the ability to eat ghosts.

Occasionally a red pill will materialise. Eating this doubles the value of any points scored from that time onwards – quite a bonus if any of the high value fruit tokens appear.

Finally there are the green pills – which give Pacman the ability to out-run any ghost on the screen. I would advise you to take a yellow pill soon after swallowing the green one – a high speed blob can be difficult to control, so it helps if he's invulnerable.

The final weapon in Paccy's armoury is his jumping ability – not a feature of the original game, but a welcome addition. A quick stab at the fire button can send you flying over a pursuing ghost.

When the strains and stresses of saving the universe begin to get you down, play Pac-mania and smile again!

Carol Barrow

Pac-mania
£19.95
Grandslam

Sound
Graphics
Gameplay
Value

Overall – 85%

MANHATTAN DEALERS

ALSO known as Operation Cleanstreets this street fighting game casts you as Cleanup Harry, an undercover cop who's been assigned to duff up all the drug dealers in the city. What it all actually boils down to is really just another variation on the martial arts theme so beloved of computer games designers.

Harry's task is to thump the villans into submission, take their drugs and burn them them in a fire conveniently lit in a nearby dustbin.

Every time he incinerates some drugs his health improves – indicated by a bar at the bottom of the screen. Conversely, each blow Harry receives from a thug decreases his well-being.

Among the bad hats that Harry has to deal with are a punk armed with a bicycle chain, bikers, a Hell's Angel with a chainsaw, ninjas and a blonde female clad in thigh-length boots and sporting a whip.



Cleanup Harry out on the town

While he's dealing with a member of the underworld, the local neighbourhood usually add their two-penn'orth by throwing bricks, flowerpots and any other objects out of upstairs windows. I even saw Santa Claus appear at one window, hurling out what looked like a Christmas cake.

Manhattan Dealers takes place against an atmospherically designed background. Dark, dirty and dismal litter-filled backstreets, a dingy cellar, a sleazy wharf, wire fences, graffiti, and boarded up windows and doors all conjure up the right ambience for the game. In fact, this is the best part of the whole affair.

The characters inhabiting the game are well drawn but the animation is dire. Everyone, including the hero, moves jerkily and slowly and what atmosphere is generated by the backdrops is instantly lost the moment you start to play. There's some music (pretty ordinary) and a few spot sound effects (unconvincing).

Harry has a variety of kicks and punches at his disposal, but the unrealistic animation and the less than immediate response to joystick or keyboard control make every encounter as unexciting as yesterday's cold rice pudding.

The game offers five levels of difficulty, each basically the same – it's just that the villains are more numerous and vicious. A demo option shows you virtually all that there is to see.

Manhattan Dealers promises much but delivers little. The poor animation spoils what might otherwise have been an above average kick and punch game. Watch the demo in the shops before deciding whether or not to buy.

Bob Chappell

Manhattan Dealers
£19.95
Entertainment International

Sound
Graphics
Gameplay
Value

Overall – 41%

ELITE

LONG, long ago, in the dim and distant past when 8 bit machines ruled the Earth, Messers Braben and Bell conceived and coded what was to become one of the greatest computer games of our time – Elite.

BBC Micro users everywhere abandoned their chores, hobbies and wives in search of the adrenalin buzz as man and machine became one in the inter-galactic adventure of the decade.

Until today, Electronic Art's Interceptor was the only Amiga game to come close to the addictive atmosphere of Elite. Now the ultimate is available on the ultimate home computer – and it's great!

Elite is a trading/combat game of mammoth proportions – the playing area covers eight separate galaxies and more than 2,000 planets, each having its own political and economic structure. Such information is of little consequence when playing a pure zap and blaster like Galactic Conqueror, but for anyone hoping to make a name for himself in the galaxy it is a must.

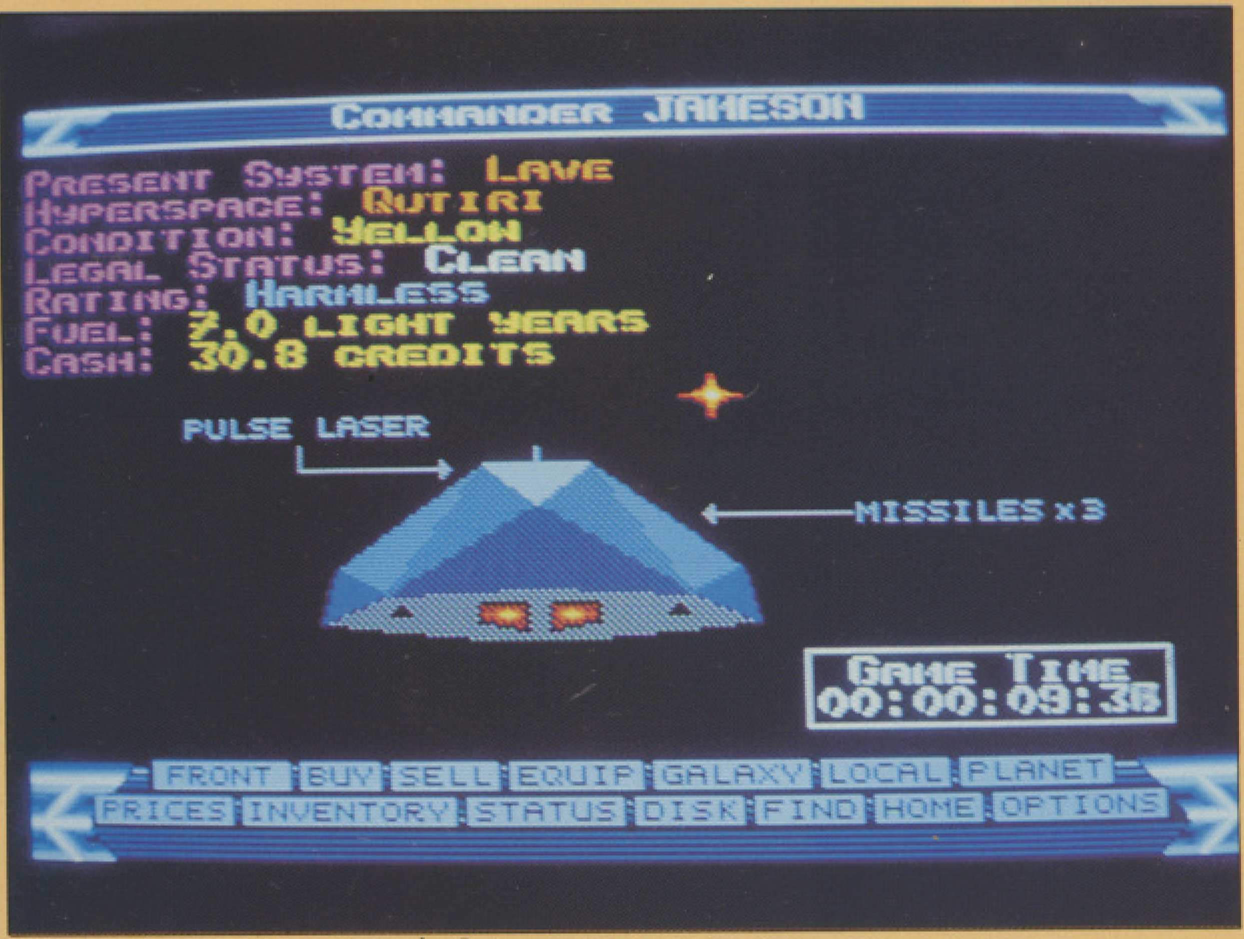
The ladder to success in Elite is eight rungs long – you begin with a rating of Harmless and progress through the ranks of the Dangerous and Deadly until you finally join the small number of pilots who make it to become Elite.

Your rating increases in relation to the number of kills you notch up on your travels. These may be good guys or bad guys, they all count as kills. The only disadvantage of blasting the goodies is the effect that this has upon your legal status.

Following a few indiscretions your status will be adjusted to read Offender or even Fugitive, which has undesirable consequences when wishing to dock at space stations in law abiding systems. It is not uncommon for a fleet of police Vipers to form an unwelcoming committee.

The base model Cobra Mk3 is hardly a ship to put the fear of Zarquon into a battle-hardened space pirate, enter the trading aspect. Data can be called up for any planet in the current galaxy – the two most important items to note are the planet's Tech Level and the Government type.

On a technically advanced planet the price of food and textiles is high, but the cost of computers is low, the reverse being true for a planet with a low Tech Level. All you have to do is find two such planets in close proximity to each other and satisfy their respective economic needs.



Keep an eye on your progress on the Status screen

The planet's political stability determines how much hassle you will get from pirates. Democratic planets have relatively small pirate populations in comparison to the fleets of fighters that you will encounter when visiting an Anarchic system.

Drawing upon all of your capitalist instincts, you amass as many credits as you can in order to upgrade your Cobra. With sufficient funds you can buy more powerful lasers, a larger cargo bay, an escape pod, and most useful of all, a docking computer.

Before you can make any money in the trading business you must master the technique of docking with the Coriolis-type space station. All you have to do is line your ship up with the single opening and coax the ship slowly into the docking bay. Oh yes, I almost forgot, the space station is rotating, so you will have to rotate your ship too!

Inside the station you can call up a wide variety of navigational and trading options. Using the local and galactic charts you can display planetary data – useful when planning trading routes.

By studying the prices screen you can make shrewd purchasing decisions and pack your 20 Tonne hold with the goods that will reap you the biggest profit.

The Equip screen displays the items of equipment that can be bought from the current planet – availability varies considerably with the planet's Tech Level. All planets stock fuel and missiles, but expensive items such as military lasers and galactic hyperdrives can only be found on planets of Tech Level 10 or above.

In an attempt to reduce congestion and collisions all hyperspace jumps are terminated a short distance from the destination planet and the remainder of your journey should be completed as quickly as possible using the space-skip facility. This automatically deactivates if another vessel is close. Dropping out of space-skip before reaching the planet is a sure sign that you've got pirate problems.

When you are deemed sufficiently competent you will be given a mission to embark upon. There are five such tasks, all of which are difficult, all of which will reap you rich rewards.

Music and sound effects are given a superb stereo ambience which heightens the sensation of panic as your on-board computer flashes *Energy Low* and you can't remember whether you saved the game at the last space station.

There have been rumours of Elite II – David Braben is now working on it. If you want some idea of what to expect... Virus was designed as the planet sequence for Elite II – a sort of equivalent to docking. It will be some time.

BBC Elite is a classic, the kind of game you will tell your grandchildren about... "I remember when 32k was a lot of ram". Amiga Elite has a number of new features – reverse thrusters to make docking a shade easier, medical supplies have been added to the items in which you can trade, there are five missions – taken from all the previous versions. Amiga Elite is the best yet.

Jon Revis

Elite
£19.95
Firebird

Sound
Graphics
Gameplay
Value

Overall – 96%


"THE BIGGEST GAME EVER" GAMES MACHINE
The Kristal
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REACH FOR THE STARS

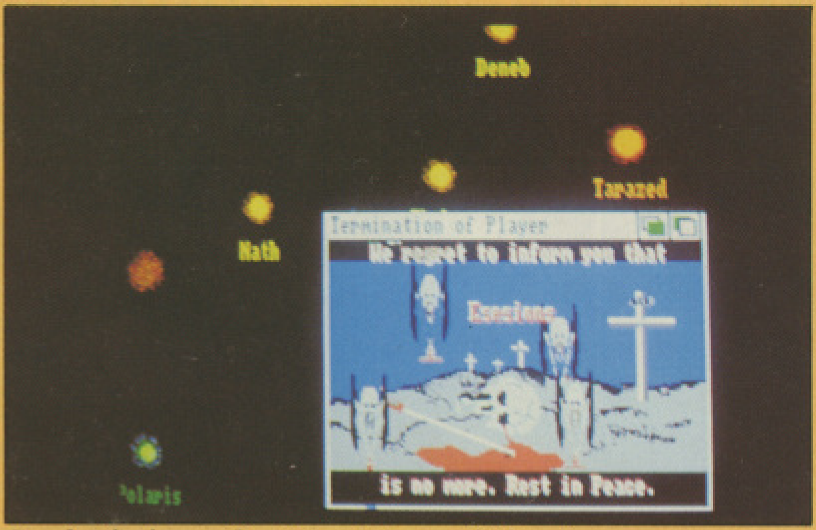
THIS is a strategic game of galactic exploration, colonisation and conquest. Although the sound and graphics are disappointing, they don't matter quite so much in a game which is practically all tactics, planning and strategy.

The idea is to explore new star systems, pick the most promising and set about colonising them. Once occupied, the stars can be used for production of resources which are then allocated for research, development, defence, environment, social matters, consumer needs and industrial growth.

RFTS is a four handed game, the computer playing all the roles of those not taken by human players. Each player takes it in turn to give his complete set of orders, the turns alternating between movement only and production plus movement.

A wide number of reports and choices are available during a turn. You can get stacks of information on the star systems including which have been explored, check out the status of all task forces, costs, current spending, placement of forces, and so on.

Building your forces is an essential part of the game. The more productive a planet is, the more materials you can buy to construct and equip your galactic navy with transports, scouts and warships.



One for the lover of tactics, strategy and planning

When every player has finished a turn the computer executes the movement of ships. When ships of different empires end up in the same star system, combat takes place.

Combat is split into rounds, at the end of which each player is given the opportunity of withdrawing his ships. Victory in that battle goes to the player whose forces are the only remaining ones in that system.

The ultimate winner is the one who has scored the most victory points, earned by developing colonies, being triumphant in battle, conquering planets and destroying colonies.

Graphically, the game is unimpressive. The main display is a segment of a star map showing the named planets and any scout ships. This map can be replaced with a smaller one showing the entire system. Sound is used mainly in the form of alerts – for instance *invasion taking place*.

However, it is not the graphics or sound which really matter too much in a game like this but the wealth of detail and strategy options that it contains. And those Reach For The Stars has in plenty.

It is not the sort of game you can plunge straight into – you'll need to at least browse through the detailed 32 page manual first. Fortunately, there is a simple tutorial which helps ease you gently into the complexities.

This will appeal to all who like their entertainment to be of the more leisurely and cerebral kind. While it lacks the pace, visual attraction and excitement of an Elite, it is nevertheless engaging stuff and a game you can play many times over and yet still find new variations.

Bob Chappell

Reach For The Stars
£29.95
Electronic Arts

Sound
Graphics
Gameplay
Value

Overall – 75%

NO EXCUSES

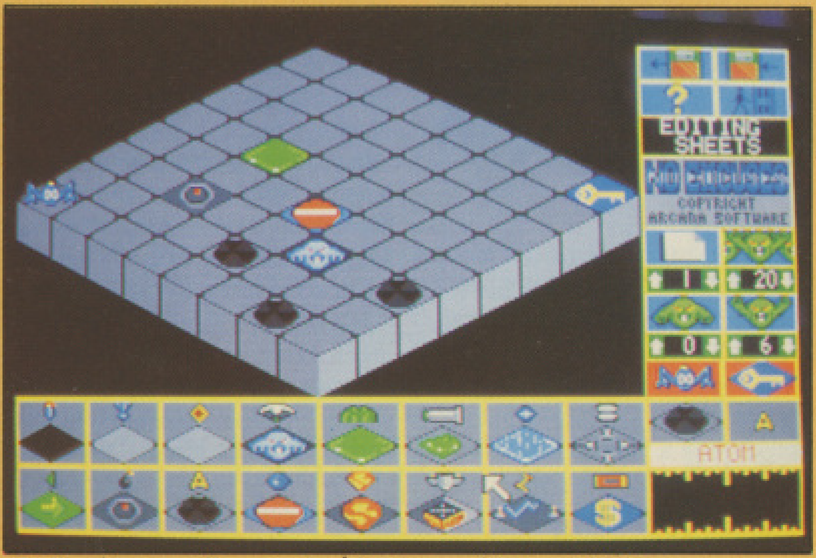
THIS is something a little bit fresh in the world of shoot-'em-ups. Put at its simplest, No Excuses offers a large helping of manic mayhem which also demands more than a smidgeon of intelligence.

You control Strider, a plump blue robot with wide eyes, long stick insect-like legs, and a cannon that simultaneously fires vertically and horizontally. The playing area across which Strider roams – forwards, backwards, left and right – is a large three-dimensional grid. Hovering above it is a well distributed flock of aliens, green puddings with unpleasant faces and arms where their wings should be.

Like our old mates from Space Invader days, these flying fiends move lower with every pass of a width or length of the grid and one touch from them costs our hero a life.

But Strider doesn't have to wait until they've landed on the grid before blasting them – he can pick them off in mid-air when they zoom directly overhead, which is easier said than done.

Control could have been made a little smoother – changing direction is almost a two-stage job with a joystick.



Challenging, totally pointless but exceedingly addictive

In addition to the greenies, Strider must avoid the bombs which rain down. He has another trick up his sleeve, a quick press on the special panic button causes him to be enveloped in a temporary indestructible bubble.

Once he's blatted all the aliens, Strider must head for the single square containing a key symbol. Once he's done that, he moves on to a new grid. There are 50 levels, consequently ooodles of alien annhilation to get your teeth into.

It's not only the aliens that cause problems for Strider. Some of the squares have different properties at the beginning of a stage or are given these properties by being hit by a special bomb.

A square might become sticky, radioactive, unstable or impassable. It might disappear altogether, become a deadly time bomb or impart fatal electric shocks. And that's but a few of the for instances.

It's not all bad news, some squares reward Strider with bonus lives, extra bubbles or lives', others impart special powers.

The graphics and animation are pretty good and the digitised spot effects add to the fun.

There's a choice of control devices – keyboard, mouse or joystick – and, if you prefer the keyboard, you can redefine it to your own taste.

Finally, there's a built-in construction set that's dead easy to use. Even the pre-supplied screens have random factors associated with them, so they are different every time you play.

No Excuses is good fare – varied, attractive, challenging, totally pointless but exceedingly addictive. Despite the controls, it's the sort of game that should get you playing well into the wee small hours and then coming back again for more.

Bob Chappell

No Excuses
£19.95
Arcana

Sound
Graphics
Gameplay
Value

Overall – 75%

CAPTAIN BLOOD

THE story of Captain Blood is an unusual little tale – a third rate games programmer finally came up with the goods, a game so mega that he became part of it the first time he typed Run.

All was well until Bob made his first hyperspace jump and a glitch in the system resulted in him being cloned. Now there are 200 Bob Bloods scattered around the galaxy and each one contains a fraction of his vital fluids. Unless he captures every one of them and recovers the fluid he is doomed.

We join the story with only five clones remaining – hidden somewhere among the galaxy's 32,768 inhabitable planets.

You begin the game sat at the Ark's control panel, viewing the planet you are currently orbiting and Blood's bio-mechanical arm – this is your link with the game.

Too large to land on a planet, the Ark is equipped with a limited supply of Oorxx – mutated, remote controlled, space fish. These are despatched to the planet's surface in an attempt to communicate with intelligent beings who may know the whereabouts of Bob's clones.

The ground skimming flight over the planet's surface is the game's only arcade-type sequence. With full control over the Oorxx's speed, altitude and direction, you wend your way over mountains and valleys in search of a canyon. Life forms, if present, will always be found at the far end of a canyon.



Select your next destination on the Star screen

Wireframe landscapes are animated quickly and smoothly, but some of the structures are difficult to pick out when flying over a ravine of rock pinnacles at speed. Having read glowing reviews of previous versions, I was a mite disappointed when I saw it for myself.

The view from the Ark of the nearest planet is limited to a low resolution sphere of swirling colours – yawn.

Investigate the first planet you are initially presented with, as this is always inhabited. I mention this point because if you decide to go boldly where no man has gone before, you will get pretty bored – a surprisingly large number of the galaxy's planets are devoid of life.

Assuming you have located your local friendly alien life form, the ship's Upcom will automatically burst into life. This Universal Protocol of Communication uses an icon system to allow conversation between beings of different worlds.

When Mr Alien speaks, a series of icons appears on your Upcom display and running Blood's finger over the icons gives you a literal translation. Likewise you can piece together a sentence by selecting the relevant icons and then pressing the transmit button.

The game revolves around your ability to successfully interrogate aliens – many of whom have needs of a reproductive nature. If you can fulfil these needs – not personally – they may divulge information relevant to your quest.

Captain Blood is a game with good graphics and an excellent title tune, but sadly it lacks variety and depth in the gameplay department.

James Riddell

Captain Blood
£24.95
Infogrammes

Sound

Graphics

Gameplay

Value

Overall – 76%

THE KRISTAL: A PREVIEW

THE Kristal is the brainchild of Fissionchip director Michael Sutin, and despite a 1976 inception this massive 16 bit game is now ready for launch.

It was while he was touring Spain with the original Hair and Jesus Christ Superstar shows in 1975/76 that the inspiration came to write his own stage musical story called The Kristal of Konos.

In early 1987 he began dabbling with the idea to convert The Kristal into a 16 bit micro game.

The mammoth task involved a team of professionals. The Kristal has 60 exquisite background screens drawn by Michael Haigh and the well known illustrator David Hardy.

Appearing on those screens are more than 75 animated sprites, including over 50 characters designed by Chris Petts, Julian Edkins and co-author Rodney Wyatt. With more than 1,500 frames The Kristal is graphically stunning.

An original soundtrack introducing the game was written by Micky Keen and Rodney Wyatt, a highlight of which is a digitised narration by Patrick Moore.


The Kristal is graphically stunning

The coding involved in such a task has been masterminded by Giulio Zicchi, assisted by Justin Gavinovic, Alex Mills and John Edwards.

The Kristal defies categorisation and includes the best of graphic adventure, space travel and shoot-'em-up. It tastes mildly of Captain Blood, and the character interaction is similar to the 8 bit game Valhalla.

You play the role of the hero, Dancis Frake in your quest to find the lost Kristal of Konos and return it to its rightful resting place.

You begin the journey on Novala – capital city of Meltoca – having awoken from a timeless dream with no real memory of who you are or where you come from.

With joystick controlled movement across a scrolling set of screens you explore the planet, talking to any characters you may meet. The beefy parser allows conversation with intelligent responses.

You can become involved in skirmishes with bad guys who get in your way – but be warned, an aggressive approach isn't always a successful ploy. Rapid joystick dexterity is the order of the day if you are to survive.

Space travel to your home planet, Zaphinola, and other stars in the galaxy is possible. Hyperspace and galactic battle bear a passing resemblance to Elite or Captain Blood.

In your inter-stellar travels you will meet a pot-pourri of interesting characters, including the powerful Kring Narta, Nerod of the Two Bones – Gru to the Kring, a creature known as Slurpic, the odd talking flower and many more surprises. Don't be surprised that in your amnesiac state of mind you don't recognise your old buddy Mervin the Mauve, who is distinctly puzzled by your aloofness!

Distributor Prism hopes to market The Kristal in early February on a three or four disc package at £29.95.

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DIGICALC

Reviewed in the December issue of Amiga Computing

At last, an inexpensive and very easy-to-use spreadsheet that's simple enough for beginners, yet sophisticated enough for professionals.

Digicalc is both menu and command driven. It is fast, with all calculations being performed instantly, and the spreadsheet is constantly updated.

The manual has been carefully designed to cater for all types of user, from the novice to the expert. It includes a tutorial with step-by-step instructions, a glossary of computer terms, a quick reference card, a full reference section and a comprehensive index.

"I really liked the package to begin with, and first impressions are important... Digita deserves full marks for the way in which the menus and command driven operations have been implemented... It's a no nonsense spreadsheet... I'd certainly recommend it for general purpose spreadsheet work". – **Rex Last, *Amiga Computing*, December 1988.**

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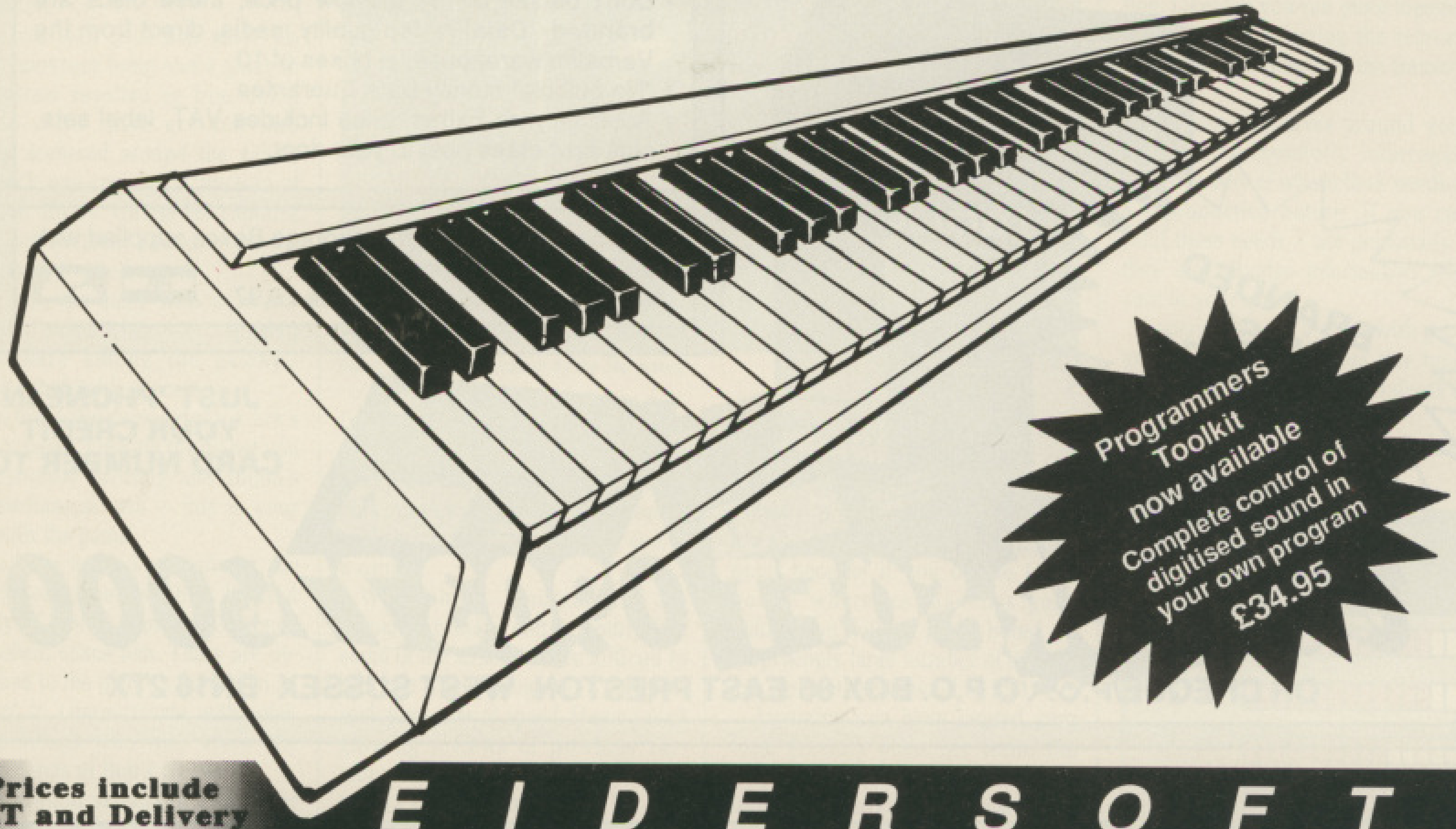
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TV SPORTS FOOTBALL

FROM the people that brought you Defender of the Crown, Sinbad and the incredible Rocket Ranger comes an accurate and classy American Football simulation. A radical departure you may think, but when you consider how the USA's favourite sport has become so heavily dependent on its television coverage, the concept begins to make a little more sense.

Cinemaware's creative driving force, Bob Jacob, reckons that the company's first products were merely experimental test runs – and seeing what's on offer from this program, it's easy to believe him.

The televisual front end is clever and entertaining, but the football game that it precedes and the almost total customisation options (allowing complete personalisation of your own team – and up to 28 friends to participate in a real-time league!) punt this product into a league of its own.

You take on a multitude of tasks, incorporating coaching and playing almost every position. Your first duty as coach is to pick a team, either using one of the 28 default lists or creating a new squad, complete with names of anyone you choose.

A list is displayed on the coach's clipboard, with each name followed by four categories: Speed, strength, hands and ability. You then allocate a set number of points between the squad, dividing each player's quota into these categories.

Depending on the player's position, each rating has a different effect, for instance the quarterback's ability rating determines how accurately his passes fly, while the same section controls how quickly the fullbacks change direction.

When you're quite sure that your team is just the way you like it, a dime is tossed to decide kick off and the opening game of the season begins.

The usual one and two player options are accommodated, but a novel twist adds still more to the program's polish. Two players can opt to take each other on in a head to head confrontation or can choose to join forces against the computer. In the latter case both players participate throughout, with one controlling the offence and the other looking after the defence.

During the game proper, a single player – highlighted by a flashing jersey – is controlled via the joystick. The highlighted player is usually in the thick of the action – for example, during defensive plays the quarterback is controlled until he releases the ball, at which point the nearest receiver is selected.



The quarter back has every incentive



Hut! Hut! Hut!

The remaining players follow the path set out for them by the selected "play", but unlike the real thing, the players are gifted with intelligence and are capable of adapting to suit the opposition's game pattern.

All games are played out in real time, and as such take a little over an hour to complete. Because of this, Cinemaware has included an option where the computer will carry on for a human player and play both sides if necessary. You can rejoin the game at any point simply by picking up the joystick and getting stuck in.

Each player's movement is believable and realistic, and anyone who follows Channel 4's regular coverage of the real thing will immediately recognise how accurate this simulation is – right down to the constant barrage of statistics that appears on screen. Other elements such as place kicking and time outs are included to complete the package.

TV Sports Football is one of the few games I've seen that comes close to exploiting the Amiga's full capabilities. There is of necessity a little disc swapping, but this generally happens at times when the action has stopped and you really need a breather anyway.

A stunning American football game such as this would be enough for the price, but the addition of all the little finishing touches, such as the on-screen appearance of previous Cinemaware characters and the marvellous documentation, makes it as close as I've seen to the perfect computer game.

Ciaran Brennan

TV Sports Football
£29.95
Cinemaware Mirrorsoft

Sound
Graphics
Gameplay
Value

Overall – 91%

INTERNATIONAL KARATE PLUS

KARATE Games predate the Amiga by several years. Since then many attempts have been made to spruce them up – scrolling backdrops, swords and a variety of opponents – but the key thing has always been how good the fighting feels.

The main gimmick in IK+ (International Karate plus) is the number of opponents. While Barbarian has a variety of guys trying to thwack and flay your head off, IK+ has only two men coming at you. But they do so together.

Two against one may not be fair but it is much more fun. And in a two player game you and a friend can beat the pixels out of the computer's man.

There are several other gimmicks – cute ones. The single backdrop has a number of animations. The tree sheds leaves which pile up and get eaten by a worm. A spider drops on a thread and a pac-man wanders about.

The sun's ripples reflect in the sea as it laps the shore – you can alter the colours in the water. Fish jump out of the sea with a neat splash and a periscope pops up to view the fight.

The slick presentation is carried on to the title pages. A logo dripping blood had to be changed after some complaints. Instructions are shown with 66 sprites performing moves around the border and the high score table starts with some hints. But you are too busy ducking exploding fists and flying feet.



Two against one may not be fair but it's fun

In a three way fight the winner is decided on combat points. If you attack from the front you score two combat points for each successful move. The first of the three players to score six combat points is the winner, and is awarded extra points for every second left. If the fight lasts 30 seconds the winner is the player with most combat points.

If you have the lowest score at the end of a round the game ends. If one human player loses in a two player game the remaining person has to take on two computer players.

Fighting gets tougher as the game progresses, with the computer adopting different tactics. Sometimes both of the computer's players will gang up on you, sometimes they will fight among themselves and sometimes they will both run away and block so that you can't score any points.

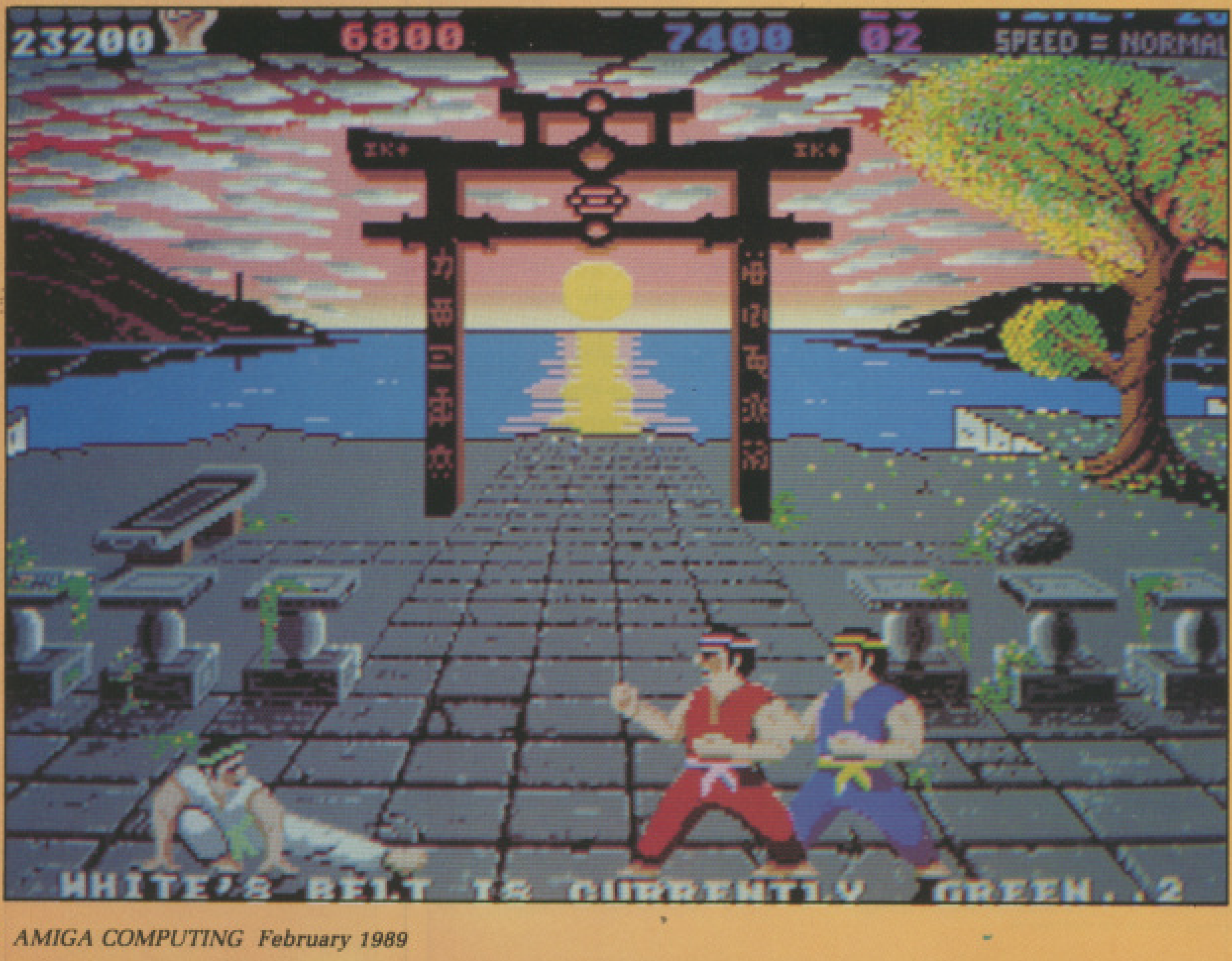
Whatever the tactics, every couple of bouts is punctuated by a bonus level. This either takes the form of bouncing balls, which must be deflected with a shield, or a screen littered with bombs. You must kick the bombs off the screen before they explode.

More bombs appear, faster and faster. Clear the sheet and you are awarded 5,000 points. The bomb level is a good way to learn how far your low kick stretches.

Movements can be combined, so you don't have to return to the vulnerable standing position in the middle of seeing off an opponent. This makes the fighting the slickest yet on the Amiga and bouts flow fast and furious.

I kept playing despite a hand which ached from gripping the joystick too hard and too long.

Simon Rockman



International Karate +
£24.99
Activision Archer Maclean

Sound

Graphics

Gameplay

Value

Overall – 82%

SUPER HANG-ON

ZKJ was not asked to write Super Hang On for the Amiga. He had collaborated with Chris Wood on the Amstrad and Spectrum conversions of the Sega arcade game and then went on to write the Atari version for Electric Dreams.

But he had been trained as a chip designer and wanted to get his hands on an Amiga, so when the Atari version was finished he embarked upon an Amiga port to produce a game which looked as though it belonged in the arcade.

When he had a running demo, ZZ – whose real name is Zareh – took the disc to Electric Dreams and it agreed to commission enhanced graphics and sound to suit an the Amiga's superior hardware.

You race a motorbike through four continents – Africa, Asia, America and Europe. Each is divided into timed stages. Fail to complete a stage in the allotted time and the game is over.

Any extra time is added to the 32 seconds you get for the next stage. You must average more than 280 Km/h to do this. Every second left at the end of the game is worth a million points. This leads to two aims – finish as many stages as possible and score as many points as you can.

This is the best racing game on the Amiga, putting Buggy Boy in the shade. You can play with the keyboard or joystick but the pros will take to the mouse. This lets you control how much the bike leans and keep a tighter rein on turn in. In true motor racing fashion drive wide and clip the apex of the turn – this is the path the rival bikes take so be careful not to hit them. Clipping the side of another bike takes a third off your speed, while a 100 per cent collision will halve your speed. They won't drive into the back of you, so you shouldn't do it to them.

The speed controls can be used to position the bike. You have nitro, accelerate and brake. The nitro boost can be called upon at 280 Km/h to take you up to the maximum speed of 324 Km/h. This delivers a lot of thrust and is accompanied by flames from the back of the bike.

The standard acceleration control can be held down for most of the race, but for really tricky bends you will have to resort to the brake.

This defies credibility. Stopping a bike from over 200 mph takes some doing and the SHO bike stops very quickly.

Zareh tried putting realistic figures into the game but it wrecked the gameplay. While the brakes are super powerful they work progressively, gripping harder the longer you apply them. The change in speed affects the radius of your turn. If you decelerate as you turn, the bike moves closer to the inside bend. Whack on a bit of power and the bike slides out. Use this to steer and you will get through corners *very* quickly.



You must learn the courses. As you speed over a hill you have no way of knowing what is on the other side. There are signs indicating sharp turns, but these are not always reliable – one or two point in the wrong direction. ZZ says this is based on the road signs near Eastcote.

The routes are not the same as on the arcade game, for two reasons. Firstly Zareh did not get a video tape of the Africa section until the Atari version was finished, and secondly there are different versions in the arcades. Knowing that the third bend among the cacti is a really sharp one makes the difference between cruising around at a leisurely 130km/h and coming to a prickly end.

If you do crash, the accident is spectacular. Depending on what you hit, and how fast you hit it, the game plays one of two different sequences. The arcade offered more, but memory and disc space are limited on the Amiga. The result is that you can end up sprawled out, yet hovering in mid-air.

Still you are too busy worrying about finishing the leg to notice the most minor of graphics aberrations. Finish the course and you are rewarded with an animation as the crowds welcome the triumphant rider. Finish the last one for a clue as to who he is.

For an experienced Amiga programmer Super Hang On is an impressive bit of coding. For a first program on the Amiga it is incredible. Zareh went out of his way to really *use* the Amiga, although the basic gameplay is the same as that on the Atari – because it is the same as that on the arcade machine – the Amiga version is very much better.

The whole game is very much smoother. The road drawing module is the biggest part of the program, only the Amiga version has wide road bars and a track which is in the correct proportion to the rest of the graphics.

This is thanks to the blitter, which is so fast that there is no flicker or slowing of the graphics in tight corners – the hardware can deal with the horizontal pixel scroll the game needs. This makes the movement of the signs around the track super slick.

The copper looks after the colours, which coming from a wide palette can be really subtle. The greys in the road are gentle to give an impression of speed without it looking as though you are driving along a 20 mile long zebra crossing. The subtle colours have resulted in dramatic skies with extra clouds blitted on.

Having used the blitter and copper there is one more graphics aid to be exploited. Sprites. When I first wrote about the Amiga five years ago I thought that hardware sprites would be important. I was wrong, few games use them, blitter objects being more flexible although not as quick.

SHO uses sprites for the nitro flares, dust clouds and the extended time details which need to flash at regular intervals, but the need to do other things overrides the flashing on inferior machines. Only the Amiga makes it possible.

If there is a flaw in the scheme of things it is the sound. Unusual since many of the games which are a simple port have beefed-up audio effects, but while the Amiga sounds are better than those on the ST they are not all they could be.

Perhaps in a game which so clearly demonstrates how good the Amiga is when programmed with finesse, I expected too much from the speakers.

Simon Rockman

Super Hang On
£24.95
Electric Dreams

Sound
Graphics
Gameplay
Value

Overall – 89%

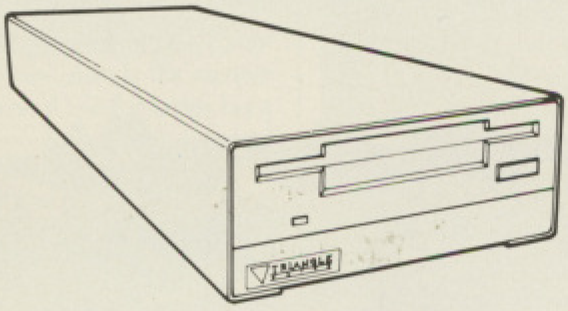
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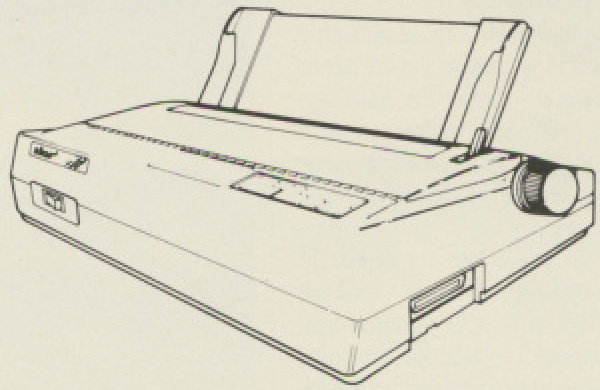


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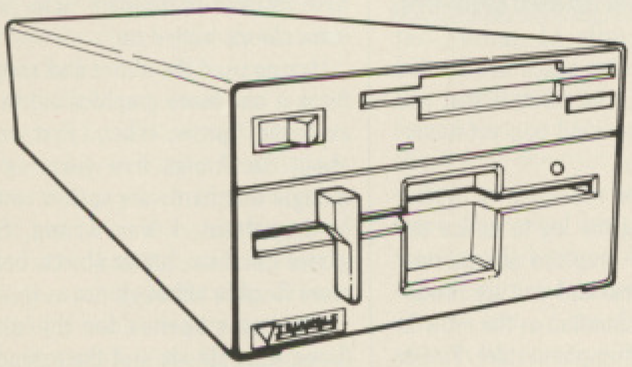
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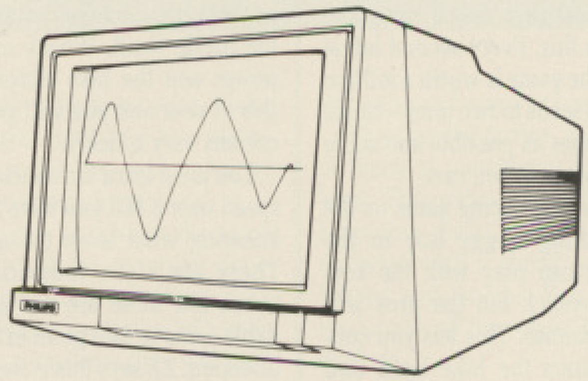


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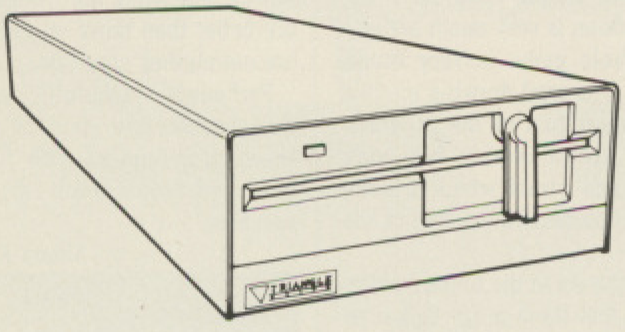
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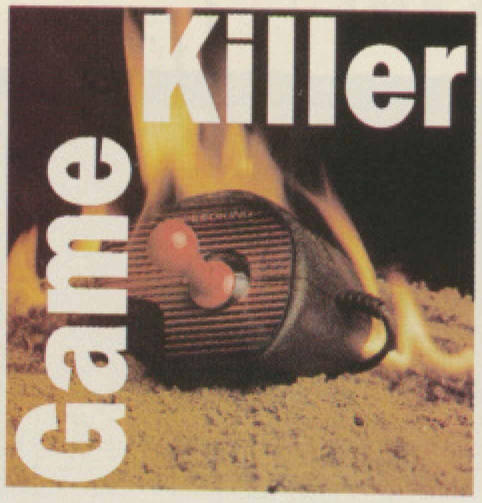
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By Max Tennant

Help for those who are all at sea

KAKIT Kan, of Malvern, where the water comes from in Worcestershire, has been all at sea with Carrier Command. He offers these hints:

When you are heading for an island always spend your time loading maximum weapons to each of your vehicles so that they will be ready for action. Spend time setting priorities. It is best to keep the aircraft and tank fuel at low, as the Manta and Walrus are pretty economical and you are not likely to run out on short sorties.

Set up defence islands. They are the hardest to destroy, so use defence ACC B. Normally Omega will repulse after attacking it once, which gives you time to head for her.

Islands are easiest to take using Mantas armed with maximum missiles – use them to destroy the enemy command centre. This usually takes three or four successful hits. Then launch the Walrus with defence ACC B. Be careful about carrier fuel – remember to put a stockpile near you, preferably on a defence island. If you want to be sneaky, take the island and place the stockpile there. You could do this to every island you capture.

If you run out of Mantas while trying to capture the island, use your carrier. This may take longer, but it is a simple procedure. Turn the observation turret 180 degrees so that it is facing the stern. Turn the carrier 180 degrees. View from the turret until you see the middle of the island, then halt the carrier.

IF the enemy is firing missiles take drones out to the back of the carrier. When you have done all this you are in a position to launch hammerhead missiles at the command centre. If you are too far away from the island to launch the missiles reverse the speed until you get near enough, then halt.

It is best to link a network of islands to Vulcan in a fan shape. Surround Vulcan with defence islands and try to get everything out of your stockpile. You will get what you order, but it may take some time. Always capture islands which are linked to Vulcan so supplies can be sent. But in case things go wrong put a stockpile an island away, preferably a defence island.

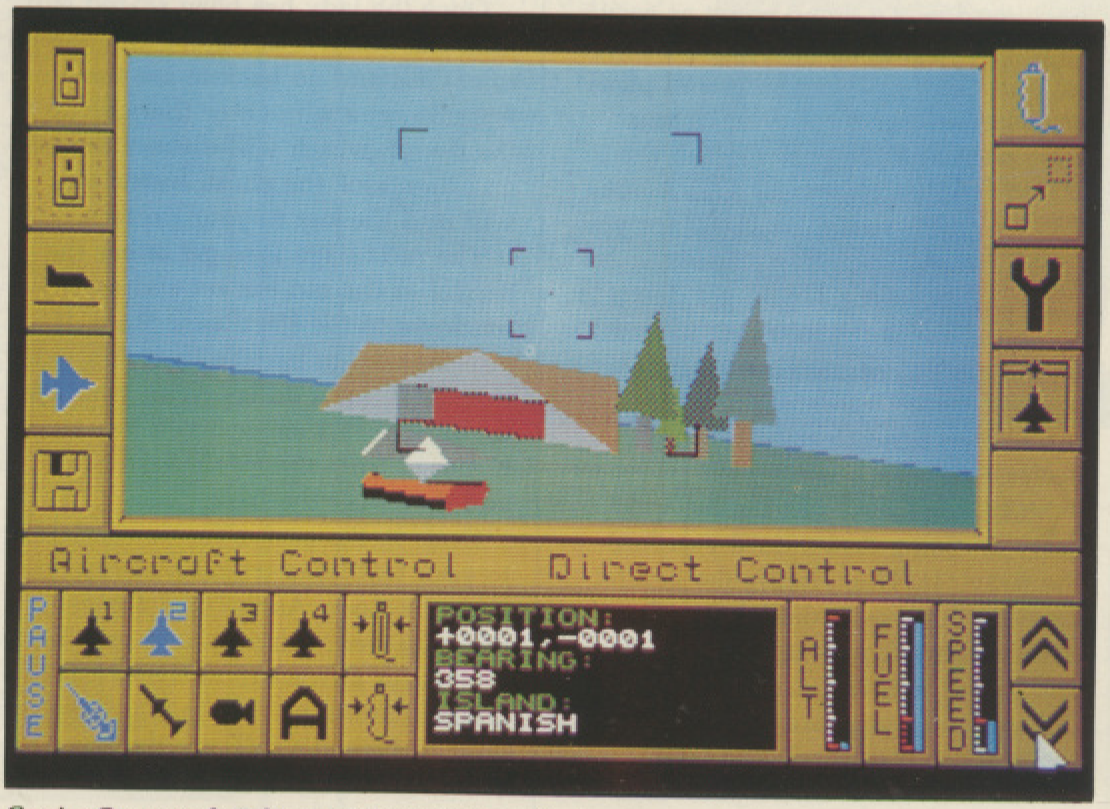
The aim of the game is to destroy the enemy carrier Omega. Go all out to destroy her. If you attack Omega a couple of times before the final assault you will weaken her. The next time you fight you will destroy her. Try to locate roughly where she is and where her next destination might be, for example she may have attacked and captured Bachus and Storm. Then she would probably head for Terminus, so wait for her near Terminus.

IF you want to attack Omega early in the game select the action game and go halfway between Storm and Terminus, which are defence islands. Wait for Omega to attack one of them then head for it at full speed. Make sure you are not too near an island or Omega will not attack it.

When you get to the island use the same system as when capturing islands but this time launch everything. If you are lucky the island is still a free one and Omega will be a sitting duck. Take out all drones. Take out all Walruses and arm them with maximum missiles, usually nine each. These are more powerful than the ones carried by Mantas.

Make sure you are near enough when launching. Aim directly at Omega and fire. Do not move the mouse or it will miss. Launch all missiles which act as drones if nothing else.

Bring out the Mantas armed with the maximum seven missiles. Launch two to three Mantas at a time; while controlling one launch all missiles at Omega. When you are doing this the other Mantas act as decoys. ▶



Carrier Command. Take out islands with a Manta

Then go for a suicide missile crash into Omega. Use the same technique with the other Mantas. The main thing is to damage Omega as much as you can until she blows up. At this stage priorities should be:

- Engine – low
- Radar – low
- Communications – low
- Laser cannon – low
- Anti-missile missile – medium
- Lift – high
- Auto-repair – high
- Superstructure – high

The enemy carrier will normally leave after capturing the island, so don't bother trying to catch it – it is more sophisticated than your carrier and much faster. If you fail, well bad luck, but you will have weakened her and you will have plenty more opportunities to attack her again. If all else fails carry out a suicide mission with the carrier and try to crash into Omega – providing the engine is operational.

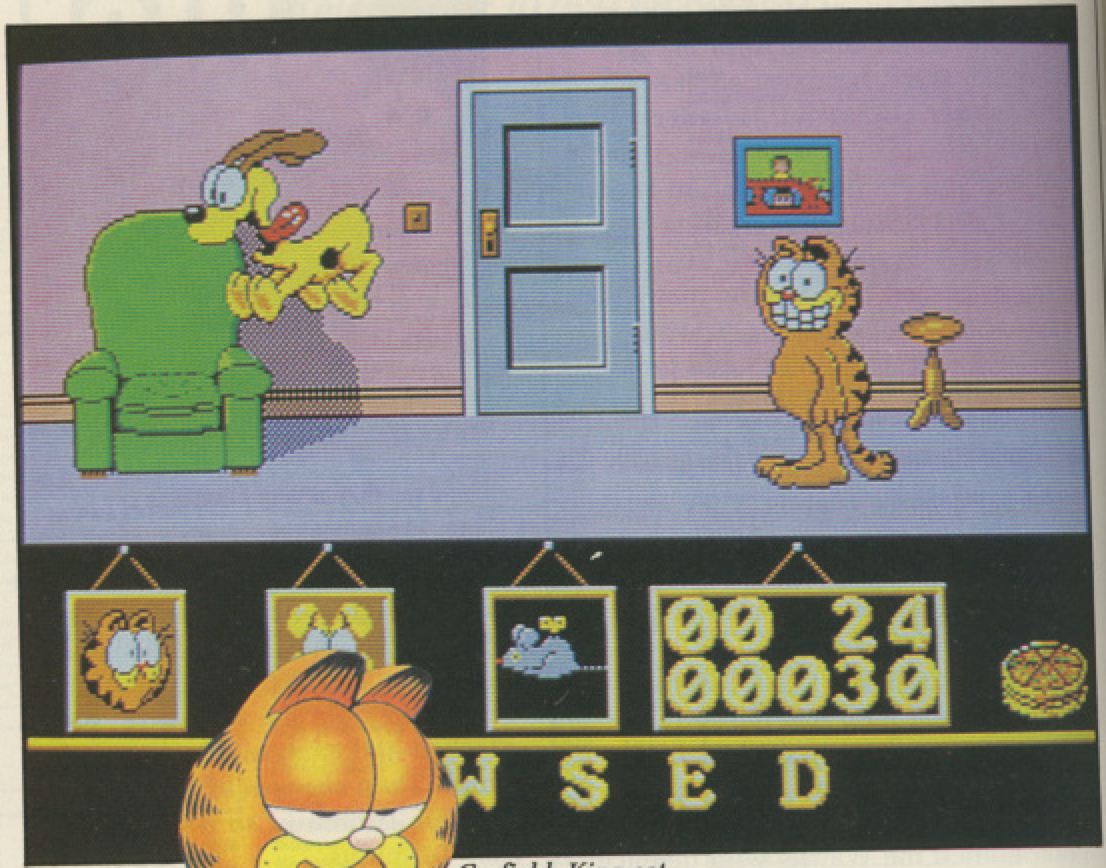
ADRIAN Curry is having more than a few problems with The Edge's computer version of Garfield. Well big fat hairy deal, who isn't? But before you kick Odie to death here is Adrian's simple solution to the game where a cat is king:

The first thing I would advise you to do is to open the dog flap, which will allow access to and from the back garden. To do so is not as easy as it may at first seem. You will have to grab Odie's rubber bone and place it as close to the back door as you can. Then as Odie goes to grab the bone he will accidentally knock open the flap, making it a lot easier for you to get around.

After this I suggest you get down to some serious work in trying to free your girlfriend from the cat pound. Go into the bedroom and grab the torch, then head straight for the sewer.

Make your way past the rat and carry on going down until you find the stray cat. Then, being the gentle creature that you are, kick it. After the cat has run off, pick up the mouse and give it to Odie.

Then make your way back up to the top, drop the torch and take the mouse back off your old pal. From here, stroll on down to the Health Store and let the mouse run around the place.





Garfield: King cat

Once the lady has been scared stiff grab the donut – but don't be tempted to eat it – and go back to see the friendly rat again. Once there, drop the donut, which will distract the rat, and then kick the chest. Inside you will find the key to your dreams.

The next stage is to get either the shovel or the old bucket and mosey on down to the Hardware Store. If you then try to use the item you will trade it in for a dollar. With your new found wealth I suggest you buy some birdseed from the Healthfood Store and then visit the park.

Once in the park offer the birdseed to your feathered friend by dropping it on the floor. As the bird comes down to feed, jump up and grab on to its feet for a free trip to the cat pound. Once in there, just make your way to your girlfriend's cell, use the key and "Hey! Ho! Off you go".

One way of boosting your score is by playing golf in the park, especially if you manage to kick a hole in one. If you should miss, don't worry, you can find your ball next to the lady on the park bench.

If you are sick to death of Odie pinching your items, give him something to play with, such as the aniseed balls.

ELITE – the best selling game in the world. Some people say it is the best game ever, other people say it's the hardest game ever. If you should fall into the last category read on for some points to help you reach the glorious title.

To obtain the first of the five missions in Elite, hyperspace into galaxy two, then perform approximately 32 hyperspaces. You will need to make 64 hyperspaces for the next, then 128 and so on.

- Mission one: The Constrictor ship has done a galactic hyperspace from where it was last seen. If you do the same it should be within seven light years of where you come out, and then it is a matter of catching it up.

- Mission two: The destination of documents you will be asked to transport will normally be on the far

◀ side of the same galaxy which you are in.

●Mission three: To obtain fuel you will need to scoop it off the sun. Fly towards it until your cabin temperature almost hits the roof. Then as you pull up your fuel level will rise.

●Mission four: Three ships will appear on your scanner, then one will disappear right before your very eyes. The three remaining ships are Asps and the one which vanished is an Adder.

Shoot the Adder, using a missile if necessary, and a cargo canister will drop out of it. Pick this up for it is, in fact, a cloaking device which you can use to turn your ship invisible by pressing Y.

Warning: When this device is in use it drains heavily from your energy banks.

●Mission five: Blow up the space station and you will be given an ECM jammer. Press L to use it, but be careful about your energy level.

While the game is in demo mode you can use the arrow keys to rotate the ship how you like and use the I and O keys to bring it in and out. Pressing D starts the demo again. Pressing W during the game gives you the game credits and also tells you your score and how long you've been playing.

A simple fighting tactic which you may find useful during combat is to slow right down. This makes it much easier for you to get the enemy ships within your sights – but don't hang around too long or you will become easy pickings for them.

If you are being chased, retro rockets – to shoot you backwards – can be very useful for turning the tables on your pursuers.

Hey, I think I'll nip off and try that, Lave here I come.

Elite in-built cheat mode

TYPING SARA, as well as the correct word, into the manual protection makes available the in-built game editor. When the game is running press * on the numeric pad. By altering the following bytes you can completely customise the game. The bytes are:

91: Legal status. 0, Clean. 1, Offender. FF, Fugitive.

97: Rating. 0, Harmless. 1, Mostly Harmless. 2, Poor. 3, Average. 4, Above average. 5, Competent. 6, Dangerous. 7, Deadly. 8, Elite.

OB: Hit count. This byte has the range 0-FF. It is the count of objects that have been shot. When it goes from FF to 0 a "Right On Commander" is achieved.

1F: Fuel. When you have 7.0 units of fuel this byte contains 70. You can give yourself more than 7.0 units.

B9: Cursor type. Has no effect on the game but can be great fun to play with. It holds the numbers 0, 1 or 2 which correspond to the standard cursor styles. By changing the value beyond this range you can have most of the game objects as the cursor. Try 20.

A5, A7, A9, AA: Time. These values hold the seconds, minutes, hours and days.

19, 1A, 1B: Money. By changing the number at byte 19 to a high value you can give yourself vast amounts of money.

21: Missiles. 0-4, number of missiles currently in your possession.

The following bytes decide which equipment that you are currently blessed with. The byte either contains a 0 or 1 which signifies whether you have got the equipment.

23, Cargo Bay. 25, E.C.M. 2A, Fuel scoop. 2C, Escape capsule. 2E, Energy bomb. 31, Energy unit. 33, Docking computer. 35, Galactic hyperspace. 3A, Retro rockets. 3C, ECM jammer. 3E, Cloak device.

The following bytes contain the amount of cargo that you are carrying. Changing these bytes will allow you to have more than the maximum cargo load. The last two items are special cargos that appear as part of a mission.

42, food. 46, textiles. 4A, radioactives. 4E, slaves. 52, liquor/wines. 56, luxuries. 5A, narcotics. 5E, computers. 62, machinery. 66, alloys. 6A, firearms. 6E, furs. 72, minerals. 76, gold. 7A, platinum. 7E, gemstones. 82, alien items. 86, medical sups. 8A, refugees. 8E, documents.



Elite: All these for free

Max the Hacks is always on the lookout for help in the joystick jive. If you have any cheats then send them to MTHT, Amiga Computing, 78-84 Ongar Road, Brentwood, Essex, CM15 5BG. He will send a game from the goodie drawer and a Konix Speed King Joystick to everyone who sends a letter which gets printed.



Plain man's guide to CLI

This month Phil South delves into what we have to look forward to with the release of Workbench 1.3, particularly PATH, RESIDENT and HISTORY

IT is funny you know, but it only seems like yesterday since they announced the release of 1.3. To be factual it's more like a year and a bit, but what's a matter of a few months between friends, eh Commodore? I thought I'd give you a taste of what you can do with some of the new AmigaDos commands.

It's quite odd how AmyDos seems to borrow from other, more archaic systems, but it's true. Most of what AmyDos is has been drawn from MSdos, and quite rightly so; it works and it's a simpler transition for PC folks to the Amiga. But, curiously, a lot of newer Amiga commands, like some of those you find on PD discs in 1.3, have their roots in Unix. This is not so surprising, as Unix and AmigaDos share the same progenitor, the C language in which both are written. (OK, so part of AmigaDos was written in BCPL, but lets not split hairs here.)

PATH is a tricky command which has a direct ancestor in the PC one of the same name. What it does is tell the computer to look in certain directories for any information it might need. The syntax is:

```
PATH <subdirectory> <subdirectory>
<subdirectory>...
```

PATH isn't like ASSIGN, which tells the computer where to look for commands. No, this could be a program name, or similar, so that typing anything causes the Amy to look in ALL the directories specified. Let me give you an example:

```
PATH df1:libs dh0:games df0:scrabble
```

After typing this into your CLI, any word you type causes the computer to first look in the libs directory of df1:. If there isn't a program with the same name as the word you typed, it moves to the games directory in dh0:.

If the word isn't there to be executed it moves onto df0:scrabble. And finally if it can't find the word in any of those three, it LASTLY looks in df0:c.

Now this might seem like a bit of drag for normal everyday use, but if you have a few programs you use a lot, and they are all in different parts of your hard disc say, or even on different discs, you can type the name anywhere and it'll execute the program.

AmigaDos will always search the directories you specify each time you type anything and hit Return. The options usable with PATH are ADD, RESET and SHOW. Just typing the standard format as illustrated above cancels all previous paths and institutes the specified ones.

Using PATH ADD ... lets you add ▶

◄

more paths to the current set without overwriting those already in place. SHOW displays the current settings, so you can check you've got it right, and RESET, as used in the format: PATH RESET, clears all the paths set.

Another goodie from 1.3 which I could never do without is the RESIDENT command.

You know when you type a command how it loads it from disc every time before doing it. This cannot only be a pain when you're using the Workbench disc, but what if you've switched discs? What you need is a method of holding commands in memory so you can execute them instantly.

With RESIDENT this is no problem. You simply type:

```
RESIDENT <command>
```

and that command is loaded into memory. You can load as many commands as you like, remove the Workbench disc and continue using the commands as if the disc was still there. It's a sort of C directory ramdisc. This really cuts down development time.

The one word which you can not make RESIDENT is DELETE. That's because DELETE is an option with RESIDENT. Like so:

```
RESIDENT <command>
```

DELETE removes the specified name from the resident segment. The other option with RESIDENT is REPLACE. You can use it like so:

```
RESIDENT <command> <file> REPLACE
```

This means that the code segment for the named command is replaced by the specified file.

Another life saver is the shell, which provides a line history by using the cursor keys. This is a hangover from Unix, and means that you can call up the last few lines you typed into the CLI and edit or execute them again without having to retype.

You just press cursor up or down to scan through the recent commands until you get the one you want.

Ctrl+K deletes to the end of line, Ctrl+U deletes from the beginning of the line to the cursor, while shift and cursor movements jump to the end of lines. Very handy for file housekeeping and deleting long lists of files. You can just call up the commands and alter the filenames each time. It's so relaxing.

Ok, that's all for this time, get hold of a copy of Workbench 1.3 – you won't regret it.

● *If you have any queries about AmigaDos or CLI please address them to me at Amiga Computing, Europa House, Adlington Park, Adlington, Macclesfield SK10 4NP.*

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AMIGA Letters

Harsh Words

I HAVE had my Amiga for about one month now and although generally impressed, am having no luck in getting Kindwords to work correctly with either my Citizen 120D or Brother HR10 printers.

I have tried a variety of drivers and DIP switch settings without success. Please can you offer any advice?

A general point about Amiga software: I get the impression some Amiga prices are inflated merely because it is written for the Amiga. Compared with Protext and Prospell – I've upgraded from an Amstrad CPC 6128 – Kindwords is terrible. Protext offers so much more (how often do you need to include graphics ?), loads instantly from rom and is cheaper.

Andy Chard.
Horley,
Surrey.

Both printers can be set to be Epson-compatible, then use the Epson selection from preferences. Protext plus Prospell on rom for the Amstrad costs about £70, more than Kind Words. But now you can get Protext for the Amiga, and you should be happy.

What now?

I USE my machine purely for leisure purposes and usually buy strategy or adventure games. Your publication certainly meets my requirements regarding reviews and when buying games highly rated by your reviewers I am generally satisfied with what I have bought.

As I enjoy adventures, but invariably become immobile at various positions during the game because I cannot solve a puzzle, I found the adventure helplines offered by the magazines of tremendous assistance.

While your magazine features a regular article for arcade game enthusiasts – Game Killer – I wonder if you have any plans for helping the adventurer in a similar manner?

There must be a growing number of people who, like me, prefer the adventure/strategy type of games and would find a helpline of some sort invaluable. The number of adventure games is increasing constantly and it follows that there must be many Amiga users with unfinished ones.

I would like to congratulate you on an otherwise excellent publication which I will no doubt continue to buy, regardless of whether or not a helpline eventually appears.

R. J. Ray,
Potton,
Bedfordshire.

We will be starting a tips section in the Adventures section soon, so if you have any problems or hints then please let us know.

More ram

What difference does an extra 512k make? What is the unpopulated version?

Calvin D. Ward.
Redcar,
Cleveland.

The more ram you have the bigger program you can load. Some games offer extra features if you have an extra 512k. Super Hang On loads all tracks and speeds up starting each game, Starglider II plays music between games. There is a move towards games which only work on machines with extra ram, Dragons Lair is the first.

On a multi-tasking machine like the Amiga more memory is always useful, because you can load more than one program at a time from Workbench.

An unpopulated board is a ram expansion with no ram on it. This allows you to buy the chips separately and plug them in. Companies do this so that users who can buy ram cheaply don't have to pay a premium to buy the chips with the board. For most people this is not worth doing.

Write to: The Editor, Amiga Computing, 78-84 Ongar Road, Brentwood, Essex, CM15 9BG. We'll send the writer of the best letter each month a program from our goodie drawer.

Dial an Amiga

I am writing to inform your readers of a new Amiga-based bulletin board. The Grotto BBS is that rarity, a viewdata bulletin board running on an A500 Amiga. It caters mainly for Amiga owners and is already popular among London's Amiga owners. The Grotto can be found on 01-552-2808 24hrs a day.

R.A. Lovel
London.

Starting over

As a newcomer to the Amiga computer field I am continually getting lost in the maze of technical terms, phrases and symbols. There are a few points that I would like to raise: Are there any books that describe the Amiga system in idiot form? A recommended printer driver program for the Amstrad 3000 printer? Any chance of an Amiga poke for Rolling Thunder? What is a man to do between issues of *Amiga Computing?*

K.Bucchan,
Stoke Newington,
London.

The Commodore manual which came with the machine is pretty good, but have a look at Amiga for Beginners (16 bit Software 0706 43519 has it in stock). The Epson driver is the one you want for the DMP 3000. I'll ask Max about Rolling Thunder. Use your machine.

Tired yellow ribbon

I WRITE this with my brand new LC-10 (colour) printer, finding it irrestistible after the review you gave it. There's one thing which has me worried though: The quality of colour dumps – they are so faint.

I've tried taking the ribbon back to the shop where I bought it and they gave me a new one which I found slightly better. But then about five dumps later the quality was clearly deteriorating. The black seems to be the first colour to let me down.

I would like to know if there are any

►

higher quality ribbons available which would last longer and produce a clearer printout in the first place.

I have to say that other than that I am very happy with the printer overall. The speed in draft is great and the NLQ was unlike anything I was previously used to, my last printer being an Alphacon 32 for the Spectrum.

On the subject of Spectrums, people always seem quick to slag them off. But what many people don't realise is that they had some of the best games ever written made for them. I'm talking about epics like Lords of Midnight and Doomdark's Revenge, not to mention classic wargames like CCS's Vulcan.

In my opinion, none of these golden oldies have been touched by any Amiga games that I've seen. You can keep your Outrun directly ported over from the Atari, or Buggy Boy which was actually smoother on the Commodore 64.

There clearly seems to be a lack in really absorbing and addictive games for our computer. Having said that, I've yet to try some of the new generation Dungeons and Dragons type games like Pool of Radiance or Ultima V.

Pablo Contreras, Ruislip.

You can buy all-black ribbons for the LC-10 and keep the colour ones for best, and keep them in a plastic bag. Amiga games are improving rapidly. Open your eyes to some of the recent ones. The days of the naff ST port are coming to a close.

Next step

THE best Christmas present I have ever had was my Amiga. The second best was the money some relations gave me. Now I want to spend that money to upgrade my A500 by buying a monitor which will give a better picture than my Sony television. I don't want to spend a lot of money for a slight improvement. Which one should I buy?

Richard Burns, London

I wouldn't recommend a monitor as a first upgrade purchase unless you are using a seriously sick telly – instead go for either a ram expansion or a second drive.

Deciding which is difficult. I bought the drive first and coped well for quite a while. Then when I lent my drive to a friend I found using a 1 megabyte Amiga with only one drive a pain.

When I upgraded this was the right way to do it. But now, more and more programs which require a full megabyte are beginning to appear. Not just business products like SuperPlan but graphics programs like Zoetrope and games such as Dragon's Lair and Dungeon Master. So you may want the extra memory first. You can always use the Ram drive as a second drive.

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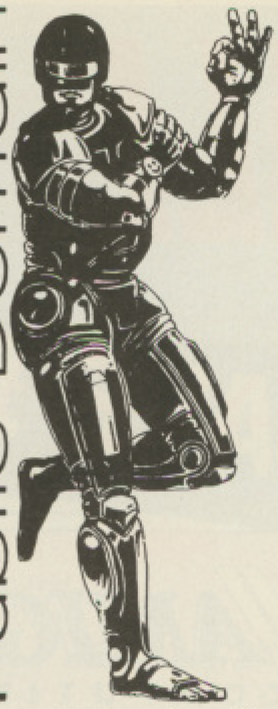
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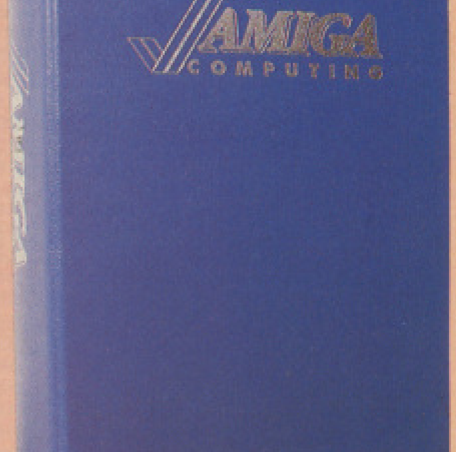
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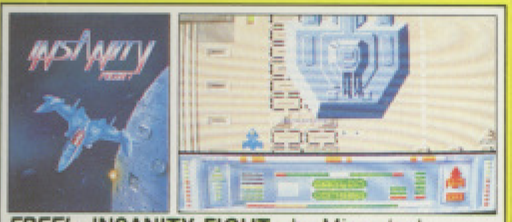
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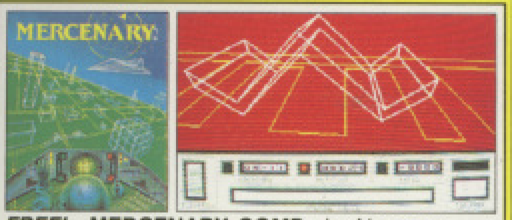
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